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MITIGATION OF THE HEAT HAZARD IN INDUSTRIES.¹

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The exposure of workers to excessively high temperatures and humidity is one of the most serious of the health hazards incident to occupation in many modern industrial plants, and the question of measures of effective mitigation of such conditions is important. Unusual conditions of temperature and humidity played but a minor rôle among health hazards in industrial plants until steam was substituted for water power. Since that time exposure to atmospheric conditions of high temperature and unusual humidity, coincident with the marvelous growth of industry and the invention and introduction of new machinery and various manufacturing processes, has given rise to one of the most common and serious problems of industrial hygiene. In several of the large industries of the United States, particularly in certain departments of those industries, the temperature to which workers are exposed is exceedingly high and in many instances is accompanied by unusual conditions of humidity. Moreover, such instances are to be found not only in large industrial plants where many persons are employed, but in many isolated working locations where heat as a health hazard is not generally considered, as, for example, in the kitchen of railway dining cars, where, during the rush hour, excessively high temperatures have been recorded. A partial list of the industries in which those employed are exposed to exceedingly high temperatures, and in some instances to extraordinary conditions of humidity, is as follows: Sugar refineries, paper mills, flax mills, laundries, tanneries, large kitchens, stoke holes and firerooms of ships, glass factories, steel blasts, and chemical manufactories.

Exposure to heat exists often as a compulsory hazard because the character of the manufacturing process carried on is such that a high temperature is a necessary attribute. In other instances, however, the undesirable conditions of high temperature and humidity to which many workers are exposed are due not so much to the char-

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acter of the industrial process as to lack of precautions. The injurious operation of this health hazard can be either greatly mitigated or practically eliminated in nearly all occupations if due consideration be given the problem and the necessary steps taken for the protection of workers. It would seem, therefore, that methods by which this can be accomplished should be of interest and value to those interested in industrial hygiene and the acquisition of an efficient working personnel.

PHYSIOLOGICAL CONSIDERATIONS.

Heat Production, Heat Loss, and Heat Regulation by the Body.

Though the temperature of the body in health fluctuates somewhat during the day, it is maintained in rather narrow limits by regulation of the amount of body heat produced and the amount lost. The normal temperature of the body (about 98.5° F.) is an expression of the resulting balance between heat production and heat loss. Since the ill effects of high external temperature upon the body are the result of a disturbance of this state of equilibrium, it is necessary to consider the factors concerned in heat production, heat loss, and their regulation.

Heat Production.

The heat produced by the body is the result of the chemical processes involved in vital activity in general or the metabolism, which is supported by the food, drink, and air consumed.

Eighty per cent of the food eaten goes to furnish body heat. All energy spent in the body finally becomes heat.

Variations in heat production.—While the amount of heat produced within the body can never sink below a certain minimum, the amount will vary according to the character and extent of the metabolic processes taking place within the tissues. Muscular tissue exceeds all others in the amount of heat produced because of its mass and activity. Therefore, an increase in muscular activity, i. e., physical work, will add much to the amount of heat produced by the body. The increase in the amount of body heat produced by muscular activity is the most important from an industrial standpoint. Other sources of heat production, however, such as glandular activity and similar physiological processes, should be kept in mind. The amount of heat produced by such activity depends upon the quantity and composition of food eaten.

Heat Loss.

The loss of heat by the body is a physical process and takes place by conduction and convection, by radiation, and by evaporation. Heat is also lost to some extent in the excreta (urine and feces) and

- in raising food and drink to the temperature of the body, though this loss is insignificant compared with the losses mentioned above. Without means by which the body heat could be lost as it is produced, the temperature of the body would soon rise to a degree at which bioplasm is destroyed and life must cease. When the loss of body heat is only partially prevented, severe symptoms rapidly ensue.

Variation in heat loss.—The amount of heat lost by the body, by the means mentioned above, i. e., conduction, convection, radiation, and evaporation, varies according to the several external physical conditions to which the body is exposed. Under ordinary conditions of temperature and humidity, the percentage of total heat loss by each of these means is as follows: By radiation, convection, and conduction and cutaneous evaporation, about 80 per cent; by pulmonary evaporation, about 15 per cent; by heating the air inhaled, about 2.5 per cent; while about a similar amount is lost in heating the food and drink and in the excreta. Abnormal conditions of temperature and humidity alter the amount lost by each of these means. The amount lost by conduction, for instance, will depend upon the relative temperature of the surface of the body and the substance with which it is in contact. Should this substance be air, another factor is introduced, viz, that of its rate of motion. The rate of heat loss by radiation depends upon the specific radiating power of the surface of the body and upon the difference in temperature between the latter and surrounding objects, while that lost by evaporation will depend upon the amount of sweat evaporated, which in turn depends upon the temperature, relative humidity, and rate of motion of air. Radiation, conduction, and convection, considered together, are sometimes called heat transfer.

The rate of heat transfer, other conditions being equal, diminishes as the temperature of the air rises. The rate of heat loss by evaporation diminishes as the relative humidity increases. As a general effect of diminished heat loss, the temperature of the skin is raised, i. e., its specific radiating power is increased, which, besides aiding in evaporation, facilitates heat transfer. A decrease in the amount of heat lost by one means is compensated, to a certain extent, by an increase in the rate of that lost by another.

Effects of High Temperature and Humidity on the Body.

While, if the loss of body heat be prevented, severe symptoms rapidly ensue, it should be understood that the ill effects of a disturbance of the heat equilibrium do not become manifest solely in acute illness, such as heat stroke or heat exhaustion, but that the most common effect of chronic exposure to excessive heat is lowered physical efficiency of the worker so exposed and diminished resistance

to fatigue and disease. While workers exposed to heat hazard eventually drop out because of decreased working powers, poor health, or some degenerative disease for which predisposition has been created by reason of the working conditions, it is unusual to find the heat hazard to which the worker has been exposed assigned its true rôle in the causation of this poor state of health. Yet the conditions of heat and humidity in many working locations are such that it is a physiological impossibility for full bodily efficiency to be maintained, not only because of the attendant discomfort, but because the body encounters physical and physiological problems with which it was never constituted to cope continuously. Many of those who have been continuously employed on the so-called "hot jobs" will state to a visitor that they have become "used to" the conditions present. In most instances, however, casual observation of the physical condition of appearance of such persons is sufficient to show that their statements are made to impress the questioner, who, as a rule, is much inconvenienced by the conditions present, and can not be held to indicate true physiological toleration. In some instances, however, limited adaptation apparently has taken place. This is very probably a result of experience rather than the true physiological adaptation, for such exposed men soon learn to reduce the amount of physical exertion to a minimum, to dress to meet the conditions, and in some instances instinctively to alter their diet.

While the body mechanism may for a time successfully cope with abnormal conditions of temperature and humidity, there seems little doubt that unless the upper range of temperature and humidity and the length of exposure are kept within certain well-defined limits, diseased conditions will result. These changes may become acutely evident at the time of or soon after the exposure, or may be gradually produced.

SYMPTOMS PRODUCED BY EXPOSURE TO HEAT.

Acute Symptoms.

Acute symptoms ensue where heat is produced more rapidly by the body than it can be dissipated, resulting in heat exhaustion or heat stroke.

Chronic Symptoms.

The effects of long continued exposure to this hazard are slow and insidious and are evidenced in degenerative changes such as arthritic and muscular rheumatism, chronic skin disorders, and arteriosclerosis. In addition, long-continued exposure to excessive heat will gradually but surely lower the general physical tone of a worker even though no special disease conditions become evident.

Effect of Radiant Heat.

Where radiant heat is concerned, the effects are generally local, i. e., the part affected is the part exposed. Changes in the skin varying from a slight reddening to a burn of the second degree may be caused without contact with the source of heat. Workers exposed to intense radiant heat often complain of their eyes, and even temporary loss of vision is a common complaint. Inflammatory conditions of the conjunctiva are common among these men and the causation of cataract has been assigned by some to exposure to radiant heat. Swollen and painful feet and rheumatoid pains of the legs and joints are frequently complained of by workers who must stand on hot surfaces.

MITIGATION OF HEAT HAZARD.

A. Removal of Source of Heat.

The temperature is frequently high in working locations because of faulty arrangement of machinery or improper housing of the department. Due to lack of forethought, sources of heat such as hot-water or steam pipes, boiler or fire rooms, steam-operated machinery, and the like, are often placed either near or in the working location of employees not concerned in their care or operation. In many instances there is no legitimate reason for this and they could be removed elsewhere without interfering with the operation or efficiency of the department, much to the comfort and efficiency of the men and the ultimate benefit of the employer. Occasionally, those occupied in the control of steam operated machinery are placed in a similar position, i. e., near the source of steam. In many cases this is unnecessary, as the control mechanism could, without impairing operation, be placed at some distance from the boilers. The working zones of those employed at boilers or furnaces are in many instances so restricted that the worker is subjected to the heat all the time he is on duty, whereas due consideration of this would have resulted in a working zone so placed or enlarged that with the exception of the time actually consumed in stoking, the worker could remain away from the heated zone without compromising efficiency in the performance of his duty. Members of the clerical force are sometimes subjected to high temperatures incident to some manufacturing process in which they are in no way concerned, because of faulty arrangement of the buildings, as, for instance, where producing departments are placed adjacent to those occupied by the clerical force. Power houses are often placed unnecessarily close to other buildings and are a source of much heat. An essential feature of plant design is that, wherever practicable, all sources of heat should be removed from working locations. In addition to this, as

few workmen as possible should be exposed to heat where such exposure is unavoidable. Whenever this removal of the source of heat is not practicable, it is necessary to protect the workers by other means.

B. Protection of Workers.

The effects of undue exposure of workers may be mitigated by preventing the heat from reaching the workers after it has been radiated. In order to minimize heat radiation, the source should be insulated. This is most satisfactorily accomplished by surrounding the source of heat with a water jacket, a hollow steel covering through which water is circulated. This method is especially useful at furnaces. Asbestos coverings have proved satisfactory in many instances, though where high temperatures must be dealt with the water jacket is better. When insulating a source of heat of large dimensions or covering extensive heat generating surfaces, such as the conduits of blast furnaces, double walls of fire brick separated by an air space are very efficient. Where insulation of the source is not practicable, other means of mitigation must be resorted to. The first step in this direction should be taken in the beginning, when the buildings to house the various departments are designed. If due consideration is given the subject at this time, much expense and labor will be saved.

Buildings devoted to hot processes should be large, high-roofed, with ample floor space, and provided with large openings in the walls and roof to facilitate natural ventilation. Such provisions will aid greatly in carrying off superheated air. In some instances it is necessary to aid natural ventilation by artificial means. Electrically driven supply and exhaust fans, if of sufficient size and properly placed and operated, are excellent. In some locations the radiant heat will be so great that the measures taken above for the protection of workers will prove inadequate. In such cases the installation of screens between the source of heat and the worker has been found to be of advantage. These screens are built of various materials according to conditions existing in the working locations, foremost among which is the character of the duties required of the worker. Brick shields are efficient, but have the disadvantage of being permanent, i. e., stationary, which in many instances is undesirable. In such cases, portable screens made of steel or steel faced with asbestos are satisfactory. In other cases where the worker must look at the source of heat in the performance of his duties, it is necessary to install transparent screens. For this purpose wire mesh may be used and the shield made either portable or stationary as the conditions demand. Wire mesh screens intercept much heat. In some cases a fine spray of water falling between the source of heat and the worker is used. Though efficient, this method should not be used except in locations

where the relative humidity is low. In some instances screens, besides being necessarily transparent, must be of such a character as to permit the worker to pass beyond them toward the source of heat. The necessity of removing portable screens for this purpose and then replacing them would seriously interfere with the proper performance of the work and in some locations would be impossible. A screen which will stop a great deal of radiant heat, yet which can be readily displaced, is made of chains hung down in rows from a crossbeam. When necessary, the worker pushes them aside and passes through, but immediately upon returning to his working, is again protected.

Another method is that of causing a strong air current to pass from below upward just in front of the sources of heat. This method, while aiding ventilation to some extent, does not act as a very efficient screen. When any of the above means fail to meet the conditions, a forced air current directed from behind the worker toward the source of heat should be provided. This method has proved very satisfactory at tube-welding furnaces. The air blast must be strong. For this purpose it is necessary to install electrically driven fans of about 3 feet in diameter. None of these methods is practicable in the case of certain "hot jobs," and here it is necessary to place the protective devices on the man himself. Among these devices may be mentioned goggles, wire mesh face masks, asbestos aprons and leggins. Where employees handle hot material, metal-faced gloves give satisfaction. Wooden or green leather soled shoes, or shoes which have a layer of asbestos, cork, or similar poor conductor placed between the outer and inner layers of the sole, will greatly aid in protecting the feet of workers who are required to stand on heated surfaces, as for example, around the soaking pits in a steel plant.

The methods mentioned above are mainly of service in mitigating the effects of radiant heat. In many working locations the conditions to be met are of a different character. Here the entire working location is superheated, often a high relative humidity exists and the measures just indicated are not adequate. In these locations we must facilitate heat loss and control the heat production of the body.

To Increase Rate of Heat Loss.

With the exception of the relatively small amount (5 per cent) of heat lost in heating food, drink, and inhaled air, and that lost in the excreta, heat loss takes place from the surface of the body. The theoretical indications, therefore, to facilitate loss by this means are to expose this surface by removing the body coverings. Under ordinary conditions, clothing lessens the amount of heat lost by the body by about 47 per cent. Experimentally, a man clothed and exposed to a temperature of 64.4° F. will lose about 79 calories¹ an hour; under the same conditions, but naked, he will lose 124 calories.¹

¹Calorie (large), the amount of heat necessary to raise 1 liter of water 1 degree centigrade.

Clothing acts as an insulator and interferes with both heat transfer and evaporation of moisture because it is usually made of substances of feeble conductivity which entangle air in the mesh. Thus, if the conductivity of silver be taken as 493, that of wool or cotton is about 0.04, and that of air is 0.000288. Therefore, where high temperature must be sustained, exposure of the body surface is indicated. This, however, can not be carried out in working locations where the abnormal conditions of temperature are due to radiant heat as here the workers are forced to wear additional clothing to avoid actual injury to the skin. In actual practice, however, it is found that by wearing clothing of a certain character, heat transfer is facilitated, for the clothes become wet with perspiration and as water is a better conductor than air, a more rapid loss of body heat takes place. It has been shown experimentally, for instance, that an arm enclosed in a calorimeter and wrapped in flannel will lose in an hour about 4.5 cal. If the flannel is wet, however, this loss is increased to 22.7 cal. In addition, evaporation takes place as rapidly from the surface of the clothing if heated from beneath the body as it will from the surface of the body itself. The type of clothing, therefore, indicated here is thin, light, and with good absorptive properties. Cotton clothing meets these requirements. However, the use of such garments adds a hazard in that the worker, after leaving his place of work in a hot and wet condition, cools off too rapidly and symptoms of internal congestion, such as muscular and arthritic pains and catarrhal conditions of the respiratory tract, may ensue. Workers can not be relied upon, either from carelessness or ignorance of the danger, to take the necessary precautions to avoid the hazard. Woolen clothing, therefore, is better, as it will perform most of the desired functions satisfactorily and yet does not allow too rapid cooling off to occur.

Relation of Humidity to Heat Loss.

The body depends upon perspiration and evaporation of sweat under normal conditions to remove about 15 per cent of the body heat. The loss by evaporation must be considerably increased if for any reason the heat loss through other paths is diminished. The most important factor governing this means of heat loss is the amount that can still be taken up by the air. This depends upon the temperature of the air. Thus at:

- 10° F. 1 cubic foot of air will take up 1.1 grams.
- 32° F. 1 cubic foot of air will take up 2.13 grams.
- 60° F. 1 cubic foot of air will take up 5.77 grams.
- 80° F. 1 cubic foot of air will take up 10.98 grams.
- 90° F. 1 cubic foot of air will take up 14.85 grams.
- 99° F. 1 cubic foot of air will take up 19.28 grams.

The water output of the body by evaporation varies inversely as the humidity of the air. The essential index, therefore, of the conditions of a working location is the wet-bulb reading, i. e., the relative humidity. Generally speaking, in no case should the air of any location where continuous work is performed be above 70° F. by the wet bulb. At 72° F., much body surface must be exposed and a perceptible air current passed over the body if work is to be performed without unduly raising the body temperature; at 82° F., a maximum amount of body surface must be exposed and a strong air current passed over the body, while if the wet bulb registers 85° F., the body temperature rises and work becomes impossible.

Air Motion.

As mentioned above, the rate of heat loss is also dependent upon the rate of air motion. In hot working zones, if the air be still, even though it be dry, the body becomes quickly surrounded by an air envelope, saturated with body moisture, which, acting like a blanket, prevents the cooling of the body by evaporation. Means, therefore, by which the air surrounding the workman on "hot jobs" can be kept in motion are indicated. Proper building design and construction with a view to adequate natural ventilation will in many instances be sufficient, but the installation of either air exhaust or supply systems, or preferably both, will cause sufficient air motion to aid materially in heat loss. The large force fans previously mentioned are very effective.

In all hot working zones the current of air should at least be perceptible, as the rate of heat loss is proportional to the square root of the velocity of the air current. Air moving at 1.5 feet per second is imperceptible, at 2.5 feet per second, barely perceptible, while air moving at the rate of 3.5 feet per second causes a perceptible draft.

Water Drinking.

Since so much body water is lost under conditions which provoke free perspiration, it is important that an ample amount of water be drunk to replenish the tissues thus deprived of their normal water content. Without this, their proper functions will be hampered and health and efficiency can not be expected. The worker should be furnished an abundant supply of water together with drinking facilities which are clean, attractive, and placed so as to be conveniently accessible at all times. The water should never be below 55° F. in temperature, as the drinking of cold water is likely to cause gastrointestinal disorders. The jet sanitary fountain is the best drinking facility. Though under ordinary conditions the amount of heat lost in bringing the temperature of water up to that of the body

is small, this amount, by judicious drinking, can be increased. Water should be drunk in small quantities and at frequent intervals, not in large quantities at infrequent intervals.

Bathing.

In addition to drinking, the use of water as a bath is very beneficial in aiding heat loss by the body. These baths should be tepid, about 85° F., and the water should strike the body with force. A strong needle shower of tepid water, of short duration, followed by a brisk rub-down, will leave the skin in proper functioning condition and in addition relieve fatigue. Physiological experiments have shown that baths greatly accelerate the return to normal of the temperature of the body after it has been raised several degrees by exercise.

Reduction of the Amount of Heat Produced by the Body.

The amount of heat generated by the body may be diminished by, first, reducing the amount of physical work and, second, by regulation of the diet. With the invention of new machinery and the introduction of many labor-saving devices much physical work has been done away with, as, for example, by mechanical stoking devices. There is still, however, much work of a laborious character to be done. Such activities produce a great deal of body heat. Thus it has been shown that a soldier weighing 154 pounds while at rest produces 1.3 calories per minute, but while he marches with a load of 68 pounds, he produces 7.8 calories per minute. This amount of heat is sufficient to raise the body temperature one degree in less than nine minutes. Workers, therefore, exposed to abnormally high temperature or humidities should not be required to perform much physical work in the aggregate. This requirement has been met by having the men rest and work in alternate short spells, a method which is practical and can be successfully applied in nearly all instances where work must necessarily be performed in hot locations.

Influence of Diet.

It is worthy of note that by means of diet the rate of heat production has been experimentally increased by 44 per cent. The heat-producing values of the foodstuffs concerned in this production vary, the effectiveness of proteid, carbohydrate, and fat being as 20:10:7. Where work must be performed under heated conditions, the intake of meats and fats should be reduced and the consumption of starches, fruits, and green vegetables increased. By proper attention to the diet, therefore, the heat production of the body can be materially reduced.

The final method of heat mitigation which can still be applied, if the character of the manufacturing process is such that high tem-

perature is a necessary attribute and the existing conditions of the working location are such that the exposure of the employees can not be prevented, is the reduction of the length of exposure. Under such conditions it is necessary to increase the force in a given location, and allow the men to work in short spells. In this way the short duration of the exposure, combined with the greater period for recuperation afforded by the long rest intervals, keeps the mechanism of the body at its highest efficiency and permits it to endure to the best of its capabilities the stress to which it is subjected during the working intervals.

THE MASSACHUSETTS ENDEMIC INDEX.

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The United States Public Health Service carries at the head of its department on the "Prevalence of Disease" in the Public Health Reports this statement of fact:

No health department, State or local, can effectively prevent or control disease without a knowledge of when, where, and under what conditions cases are occurring.

One might very well add to this statement that the information should be received promptly, the cases investigated thoroughly, and a complete record made of the findings.

The fundamentals of the epidemiological control of disease are:

1. Prompt reporting of all cases of communicable diseases.
2. Prompt and thorough investigation of all outbreaks of communicable diseases.
3. An adequate follow-up system to check the value and efficiency of the methods of control.
4. Complete records.

With this information, plus sufficient statutory powers, there can be established an efficient, economic administrative control of communicable diseases.

It is not the purpose of this paper to discuss reporting, investigating and evaluating methods of communicable-disease control. The writer merely wishes to call attention to a method of using morbidity reports that has been adopted by the Massachusetts State Department of Health. This method has been developed in response to the peculiar needs of a state with a decentralized form of health organization. As used in Massachusetts, this method may not be applicable in other places, but the principle seems to be one that may be serviceable, both in State and municipal health work.

The prime essential for the satisfactory control of any communicable disease is the early detection of the unusual prevalence of the disease. This detection necessitates:

- (a) A satisfactory system of morbidity reports.
- (b) A standard by which to judge the variation in the prevalence of the disease.

System of Reporting.

The systems of reporting cases of communicable diseases vary widely in different States. In order to clarify the principle involved in the use of the endemic index, the Massachusetts system of morbidity reports will be briefly described:

The State department of health fixes the list of reportable diseases. The physicians and householders are required to report such diseases in the city and town where they are located. These reports are submitted on postal cards, furnished by the local board of health. In a majority of places these postal cards contain little or no epidemiological data. The original report cards are retained by the local board of health, who in turn, and within 24 hours, report all cases of communicable diseases to the State department of health. These reports of the local health authorities are made upon postal cards which contain no details except the character of the disease and the name and address of the patient. A duplicate of this report is mailed to the State district health officer.

Morbidity Standards.

In order promptly to detect incipient epidemics, it is necessary for the health administrator to have some sensitive indicator of the variations in the prevalence of communicable diseases. In Massachusetts this indicator is furnished by the endemic index.

This endemic index may be defined as a numerical standard for judging the relative prevalence of any reportable disease in any community. It is based upon the amount of a given disease that has been endemic in a community over a period of years. By arbitrarily separating the epidemic from endemic disease, it is possible to use the accumulated endemic experience as a basis for detecting the onset of epidemic influences. The index may be either daily, weekly, or monthly. In Massachusetts the monthly unit is the most practical.

Construction of the Endemic Index.

The details of constructing an endemic index for a given city for a given disease may be defined as follows: All reported cases of a given disease for a given month for the preceding five years are tabulated on sheets. From these sheets it becomes evident at once when an epidemic of the disease has occurred. The total reports of cases during this epidemic are excluded from the tabulation. The remain-

ing figures are totaled and represent the endemic prevalence of the disease. The average of these figures is the so-called endemic index. This figure represents, roughly, the usual endemic experience of the city or town with the given disease for a given period of time.

This average, or index, gives a health administrator an arbitrary figure to be used as an indicator for epidemiological investigation. It has the further advantage of being a numerical standard that can be checked up by clerks who have no knowledge of communicable diseases.

The endemic index can be criticized from a statistical point of view. In constructing it we do not actually define an epidemic—we merely arbitrarily exclude evident epidemics. In adopting this course, some groups of cases may be excluded which should be included in our tabulations. However, this raises the resulting index and merely acts as a factor of safety.

An attempt is now being made to construct a practical numerical standard for the definition of an epidemic. At present the data are incomplete. We believe it can be accomplished by proper grouping of our cities and towns on the basis of population and the total incidence of communicable diseases. This information, plus the accumulated experience with the endemic index, will furnish the basis for this standard. From our practical experience with our present method this numerical standard is not a necessity.

Application in Massachusetts.

We have applied the principle of the endemic index in the following way:

A card has been devised for each city and town in Massachusetts, showing the following information:

1. The daily incidence of each reportable disease.
2. The monthly incidence of each reportable disease for the corresponding month of the previous year.
3. A monthly endemic index for each disease.
4. A weekly total of cases and deaths from all diseases.
5. A monthly total of cases and deaths from all diseases.

In addition, the population of the individual city or town is placed upon the card. These cards are made sufficiently large to contain this information for an entire year.

The method of procedure with these cards is as follows:

The daily reports of individual communicable diseases coming from each city and town are recorded by the clerk who has charge of the communicable disease postal cards. As soon as any disease in any city or town equals or exceeds the endemic index for that disease for a month, the endemic index card is at once placed in the hands of the administrator. This saves the administrator the trouble of

looking over all the cards. It does not leave the unusual prevalence of any communicable disease to individual judgment and it furnishes at once the indication for administrative action.

The inclusion upon a single card of the cases of the previous years and incidence of the diseases, and the weekly and monthly total cases and deaths, furnishes all of the necessary data for the institution of two of the fundamentals of epidemiological control of communicable diseases, namely, prompt and thorough investigation of all outbreaks of communicable diseases and the evaluation of the correctness of our epidemiological diagnosis and administrative treatment of these diseases.

Conclusions.

1. That the administrative control of communicable diseases demands a sensitive standard for judging the relative prevalence of these diseases.

2. The endemic experience of a community with a disease furnishes the basis for construction of such a standard.

3. The endemic index, while not statistically accurate, is a practical administrative tool for the public health official.

SMALLPOX PREVALENCE.

During recent weeks an unusual prevalence of smallpox has been reported in a number of cities of the United States. The disease has been universally of the mild type which has been so common in this country for 20 years. The cities in which the disease has been prevalent and the numbers of cases reported by weeks are shown in the following table:

Unusual smallpox prevalence—Sept. 30 to Dec. 8, 1917.

City.	Population as of July 1, 1916 (estimated by U. S. Census Bureau).	Cases reported during week ended—										Total.
		Oct. 6.	Oct. 13.	Oct. 20.	Oct. 27.	Nov. 3.	Nov. 10.	Nov. 17.	Nov. 24.	Dec. 1.	Dec. 8.	
Akron, Ohio.....	85,625	1	1	3	10	4	12	11	25	28	5	99
Alton, Ill.....	22,874	1	4			1	5	4	4	9	3	31
Butte, Mont.....	53,425	9	6	7	10	7	14	14	24	29	32	152
Cleveland, Ohio.....	674,073	24	1	16	21	5	17	18	26	21	32	181
Cumberland, Md.....	26,074								10	1	1	12
Denver, Colo.....	260,800	1	2	8			11	7	18	13	(?)	60
Detroit, Mich.....	571,784	5	14	14	6	17	32	29	38	41	(?)	196
Flint, Mich.....	54,772		(?)		4	2	2	7	5	15	(?)	35
Fort Wayne, Ind.....	76,183	29	13	27	34	42	30	48	30	37	23	313
Grand Rapids, Mich.....	128,291	1		2	6	1	2		7	10	(?)	29
Indianapolis, Ind.....	271,708	22	5	17	19	19	9	24	20	40	54	229
Kansas City, Kans.....	69,437	2	9	6	11	19	28	23	30	47	37	229
Kansas City, Mo.....	297,847	9	24	26	24	33	50	78	67	79	140	530
Minneapolis, Minn.....	363,454	5	9	8	7	8	23	17	23	18	(?)	118
Oklahoma City, Okla.....	92,945		2		4	4	3	1	2	10	(?)	26
Omaha, Nebr.....	165,470	5	3		10	7	55	17	77	44	59	277
St. Paul, Minn.....	247,232	5	7	(?)	9	19	5	28	22	22	(?)	117

No report.

Report not received in time for publication.

PREVALENCE OF DISEASE.

No health department, State or local, can effectively prevent or control diseases without knowledge of when, where, and under what conditions cases are occurring.

UNITED STATES.

CURRENT STATE SUMMARIES.

California.

From the California State Board of Health, telegram dated December 11, 1917:

Five cases poliomyelitis reported last week, one each in San Joaquin County, Butte County, San Francisco, Tropico, and Yuba city. Four cases epidemic cerebrospinal meningitis, 2 in Los Angeles city and 2 in Los Angeles County. Three cases smallpox, 1 each in San Francisco, Los Angeles, and Kern County. Typhoid shows increase, 27 cases last week, 12 in San Francisco, only 4 of which local in origin. Reporting venereal diseases stimulated; 267 gonorrhea reported last week.

Reported by mail for the preceding week (ending Dec. 1):

Cerebrospinal meningitis.....	2	Pneumonia.....	77
Chicken pox.....	104	Poliomyelitis.....	3
Diphtheria.....	69	Scarlet fever.....	88
Dysentery.....	1	Smallpox.....	11
Erysipelas.....	5	Syphilis.....	50
German measles.....	51	Tetanus.....	1
Gonococcus.....	55	Trachoma.....	4
Malaria.....	10	Tuberculosis.....	74
Measles.....	86	Typhoid fever.....	16
Mumps.....	6	Whooping cough.....	114

Indiana.

From the State Board of Health of Indiana, telegram dated December 10, 1917:

Scarlet-fever epidemic Angola, Bloomingdale, Decatur, Dayton, Clinton County, Trenton, Randolph County. Diphtheria epidemic Sheridan. School children ordered vaccinated, smallpox, Indianapolis, Fort Wayne, Shelbyville, Richmond, Bloomington.

Massachusetts.

From Collaborating Epidemiologist Kelley, telegram dated December 10, 1917:

Unusual prevalence diphtheria: Whately, 4; Amesbury, 6 additional; Foxboro, 14. Scarlet fever: Montague, 5 additional; Pittsfield, 6 additional; Brockton, 6; Cole-rain, 3. Whooping cough: Webster, 8 additional.

Minnesota.

From Collaborating Epidemiologist Bracken, telegram dated December 10, 1917:

Smallpox Ottertail County, Hobart Township, 1; Polk County, Fisher Township, 1; Granville County, Cairo Township, 4. Two cases poliomyelitis reported since December 3.

Nebraska.

From the State Board of Health of Nebraska, telegram dated December 10, 1917:

Smallpox at Pender; scarlet fever at Lyons.

South Carolina.

From Collaborating Epidemiologist Hayne, telegram dated December 10, 1917:

Measles still prevalent; infantile paralysis 2 cases.

Virginia.

From Collaborating Epidemiologist Traynham, telegram dated December 10, 1917:

Smallpox reported from Roanoke, Wise, and Tazewell Counties.

Washington.

From Collaborating Epidemiologist Tuttle, telegram dated December 10, 1917:

Two cases poliomyelitis, Seattle.

CEREBROSPINAL MENINGITIS.**State Reports for October and November, 1917.**

Place.	New cases reported.	Place.	New cases reported.
Indiana (Oct. 1-31):		South Dakota (Oct. 1-31):	
Grant County.....	2	Clark County.....	1
Hancock County.....	2	Codington.....	1
Lake County.....	1	Minnehaha County.....	3
Noble County.....	1	Union County.....	1
Total.....	6	Total.....	6
Massachusetts (Nov. 1-30):		Virginia (Oct. 1-31):	
Bristol County—		Madison County.....	1
Fall River.....	3	Prince George County.....	3
Essex County—		Total.....	4
Salem.....	1		
Hampden County—		Washington (Oct. 1-31):	
Springfield.....	1	Clallam County.....	1
Wilbraham (town).....	1	Okanogan County.....	1
Hampshire County—		Snohomish County—	
Northampton.....	1	Everett.....	1
Middlesex County—		Total.....	3
Arlington (town).....	1		
Lowell.....	1		
Norfolk County—			
Brookline (town).....	1		
Suffolk County—			
Boston.....	5		
Worcester County—			
Worcester.....	1		
Total.....	16		

CEREBROSPINAL MENINGITIS—Continued.**City Reports for Week Ended Nov. 24, 1917.**

Place.	Cases.	Deaths.	Place.	Cases.	Deaths.
Albany, N. Y.	1		Newark, N. J.	1	1
Atlanta, Ga.		1	New Haven, Conn.	1	
Baltimore, Md.	1		New York, N. Y.	1	4
Buffalo, N. Y.	1		Philadelphia, Pa.	2	
Cairo, Ill.		1	Pittsburgh, Pa.	2	1
Chicago, Ill.	4		Pontiac, Mich.	1	
Cincinnati, Ohio	2	1	Portsmouth, Va.	1	
Cleveland, Ohio		1	Providence, R. I.	1	3
Detroit, Mich.	1		St. Louis, Mo.	2	1
Dubuque, Iowa.		1	St. Paul, Minn.		1
Fall River, Mass.	1		San Diego, Cal.	1	
Fort Worth, Tex.	1	1	Schenectady, N. Y.	1	
Ga esburg, Ill.		1	Springfield, Ill.	1	1
Lima, Ohio.		1	Stockton, Cal.	1	
Lowell, Mass.	1		Washington, D. C.		1
Milwaukee, Wis.	1	1	Wheeling, W. Va.	1	1
Minneapolis, Minn.	1				

DIPHTHERIA.

See Diphtheria, measles, scarlet fever, and tuberculosis, page 2135.

ERYSIPELAS.**City Reports for Week Ended Nov. 24, 1917.**

Place.	Cases.	Deaths.	Place.	Cases.	Deaths.
Brockton, Mass.	2		New Bedford, Mass.		1
Buffalo, N. Y.	8	1	New Castle, Pa.	1	
Chicago, Ill.	16	1	New Orleans, La.		1
Cincinnati, Ohio	2	1	New York, N. Y.		2
Cleveland, Ohio.	4		Oakland, Cal.	2	
Denver, Colo.	1		Omaha, Nebr.	1	
Detroit, Mich.		2	Philadelphia, Pa.	1	
El Paso, Tex.		1	Pittsburgh, Pa.	8	1
Erie, Pa.	1		Portland, Me.		1
Hartford, Conn.		1	Portland, Ore.	1	
Jersey City, N. J.	2		Sacramento, Cal.		1
Kalamazoo, Mich.	1		St. Joseph, Mo.	1	
Lincoln, Nebr.	1		St. Louis, Mo.	4	
Los Angeles, Cal.	3		St. Paul, Minn.	3	
Milwaukee, Wis.	1		Tacoma, Wash.	2	
Montclair, N. J.	1		Wilkinsburg, Pa.	1	
Newark, N. J.	3		Williamsport, Pa.	2	

MALARIA.**State Reports for October and November, 1917.**

Place.	New cases reported.	Place.	New cases reported.
Massachusetts (Nov. 1-30):		Virginia—Continued.	
Plymouth County—		Alleghany County.	2
Brockton.	1	Amelia County.	4
Worcester County—		Bedford County.	5
Sutton (town).	1	Brunswick County.	2
Total.	2	Lawrenceville.	9
Virginia (Oct. 1-31):		Campbell County.	1
Accomac County.	31	Carolina County.	6
Albemarle County.	1	Charles City County.	2
Alexandria County.	8	Charlotte County.	1
Alexandria.	5	Clarke County.	2
		Cumberland County.	4
		Dinwiddie County.	6

MALARIA—Continued.

State Reports for October and November, 1917—Continued.

Place.	New cases reported.	Place.	New cases reported.
Virginia—Continued.		Virginia—Continued.	
Elizabeth City County.....	18	Northampton County.....	43
Essex County.....	4	Northumberland County.....	18
Fairfax County—		Nottoway County.....	2
Herndon.....	2	Orange County.....	3
Fauquier County.....	1	Pittsylvania County.....	10
Gloucester County.....	2	Powhatan County.....	12
Goochland County.....	3	Princess Anne County.....	7
Grayson County.....	5	Prince Edward County.....	3
Fries.....	1	Farmville.....	1
Greensville County.....	45	Prince George County.....	8
Hali'ax County.....	24	Hopewell.....	2
South Boston.....	10	Prince William County.....	16
Hanover County.....	25	Richmond County.....	3
Henrico County.....	4	Roanoke County.....	3
Isle of Wight County.....	20	Rockbridge County.....	1
James City County.....	10	Buena Vista.....	1
Williamsburg.....	6	Rockingham County.....	7
King and Queen County.....	2	Southampton County.....	13
King George County.....	1	Franklin.....	5
King William County.....	6	Spotsylvania County—	
Lancaster County.....	4	Fredericksburg.....	1
Loudoun County.....	3	Stafford County.....	9
Lunenburg County.....	8	Surry County.....	16
Madison County.....	1	Sussex County.....	16
Mathews County.....	2	Tazewell County—	
Mecklenburg County.....	8	Pocahontas.....	1
Middlesex County.....	5	Warwick County.....	15
Montgomery County.....	1	Westmoreland County.....	6
Nansemond County.....	31	York County.....	5
Suffolk.....	30		
Nelson County.....	1	Total.....	628
New Kent County.....	11		

City Reports for Week Ended Nov. 24, 1917.

Place.	Cases.	Deaths.	Place.	Cases.	Deaths.
Brockton, Mass.....	1	1	New Orleans, La.....	1	
Lorain, Ohio.....	1		San Francisco, Cal.....	1	
Newark, N. J.....	1		Savannah, Ga.....	1	
Memphis, Tenn.....	4				

MEASLES.

See Diphtheria, measles, scarlet fever, and tuberculosis, page 2135.

PELLAGRA.

State Reports for October and November, 1917.

Place.	New cases reported.	Place.	New cases reported.
Massachusetts (Nov. 1-30):		Virginia (Oct. 1-31)—Continued.	
Hampshire County—		Lee County.....	1
Northampton.....	1	Madison County.....	1
Virginia (Oct. 1-31):		Mecklenburg County.....	2
Amherst County.....	2	Nansemond County.....	4
Botetourt County.....	1	Northampton County.....	3
Campbell County.....	2	Pittsylvania County.....	3
Lynchburg.....	1	Schofield.....	1
Charlotte County.....	1	Scott County—	
Dinwiddie County.....	1	Gate City.....	1
Franklin County.....	1	Spotsylvania County—	
Grayson County.....	1	Fredericksburg.....	1
Halifax County.....	4	Washington County.....	2
Hanover County.....	2	Total.....	35

PELLAGRA—Continued.

City Reports for Week Ended Nov. 24, 1917.

Place.	Cases.	Deaths.	Place.	Cases.	Deaths.
Birmingham, Ala.....	1	5	New Orleans, La.....	1	1
Fort Worth, Tex.....	1	1	Northampton, Mass.....	1	1
Leicester, Ky.....	1	1	Savannah, Ga.....	1	1
Memphis, Tenn.....	1	1	Washington, D. C.....	1	1
Mobile, Ala.....	2	2	Wilmington, N. C.....	1	1

PNEUMONIA.

City Reports for Week Ended Nov. 24, 1917.

Place.	Cases.	Deaths.	Place.	Cases.	Deaths.
Allentown, Pa.....	1	1	Lowell, Mass.....	1	3
Ann Arbor, Mich.....	1	1	Lynn, Mass.....	1	2
Baltimore, Md.....	11	8	Manchester, N. H.....	2	2
Berkeley, Cal.....	2	2	McKeesport, Pa.....	3	2
Binghamton, N. Y.....	1	1	Newark, N. J.....	45	5
Boston, Mass.....	39	20	Newburyport, Mass.....	1	1
Braddock, Pa.....	1	1	Newton, Mass.....	1	1
Brockton, Mass.....	1	1	Northampton, Mass.....	1	1
Buffalo, N. Y.....	2	15	Philadelphia, Pa.....	90	47
Cambridge, Mass.....	2	2	Pittsburgh, Pa.....	43	47
Chelsea, Mass.....	2	1	Pitts'd, Mass.....	1	1
Chicago, Ill.....	151	71	Pontiac, Mich.....	2	1
Cleveland, Ohio.....	29	16	Reading, Pa.....	1	3
Canton, Ohio.....	5	3	Roanoke, Va.....	1	1
Detroit, Mich.....	10	26	Rochester, N. Y.....	14	2
Duluth, Minn.....	2	1	Sacramento, Cal.....	4	4
Evansville, Ind.....	1	1	Saginaw, Mich.....	1	1
Fall River, Mass.....	3	1	San Francisco, Cal.....	15	13
Flint, Mich.....	2	1	Schenectady, N. Y.....	1	2
Grand Rapids, Mich.....	1	1	Springfield, Mass.....	4	3
Haverhill, Mass.....	1	1	Springfield, Ohio.....	2	3
Jackson, Mich.....	1	1	Steelton, Pa.....	1	1
Kalamazoo, Mich.....	3	1	Stevensville, Ohio.....	1	1
Lancaster, Pa.....	2	2	Stockton, Cal.....	5	1
Lexington, Ky.....	2	3	Wichita, Kans.....	1	1
Lincoln, Nebr.....	1	1	Worcester, Mass.....	7	5
Long Beach, Cal.....	1	1	York, Pa.....	1	1
Los Angeles, Cal.....	11	8			

POLIOMYELITIS (INFANTILE PARALYSIS).

Illinois.

During the week ended December 8, 1917, new cases of poliomyelitis were notified in Illinois, as follows: Henderson, Pike, and Vermilion Counties, one each; Stephenson County, two; Cook County, two, both in Chicago.

State Reports for October and November, 1917.

Place.	New cases reported.	Place.	New cases reported.
Indiana (Oct. 1-31):		Massachusetts (Nov. 1-30):	
Johnson County.....	4	Berkshire County—	
Lake County.....	4	Cheshire (town).....	1
Marion County.....	1	Bristol County—	
Tippecanoe County.....	2	Somerset (town).....	1
Vermilion County.....	1	Essex County	
Washington County.....	1	Lynn.....	2
Total.....	13	Hampden County—	
		Ludlow (town).....	1
		Springfield.....	1

POLIOMYELITIS (INFANTILE PARALYSIS)—Continued.**State Reports for October and November, 1917—Continued.**

Place.	New cases reported.	Place.	New cases reported.
Massachusetts—Continued.		Virginia—Continued.	
Middlesex County—		Dinwiddie County.....	12
Towell.....	2	Nelson County.....	4
Norfolk County—		Orange County.....	2
Needham (town).....	1	Tazewell County.....	1
Suffolk County—		Warren County—	
Boston.....	1	Front Royal.....	1
Total.....	10	Total.....	29
South Dakota (Oct. 1-31):		Washington (Oct. 1-31):	
Clay County.....	1	King County—	
Faulk County.....	2	Seattle.....	5
Tripp County.....	1	Spoilane County—	
Turner County.....	1	Cheney.....	1
Union County.....	2	Spokane.....	2
Total.....	7	Stevens County—	
Virginia (Oct. 1-31):		Col. Ile.....	1
Augusta County.....	5	Whitman County—	
Buckingham County.....	2	Colfax.....	1
Culpeper County.....	2	Total.....	10

City Reports for Week Ended Nov. 24, 1917.

Place.	Cases.	Deaths.	Place.	Cases.	Deaths.
Bellingham, Wash.....	1	1	Milwaukee, Wis.....	1	
Boston, Mass.....	1		Newark, N. J.....	1	
Buffalo, N. Y.....	1		New York, N. Y.....	4	2
Chicago, Ill.....	4	4	Philadelphia, Pa.....		1
Cincinnati, Ohio.....	1		Pittsburgh, Pa.....	1	1
Hartford, Conn.....		1			

RABIES IN MAN.**City Reports for Week Ended Nov. 24, 1917.**

During the week ended November 24, 1917, one fatal case of rabies in man was reported in Nashville, Tenn.; and one death from rabies in man was reported in Pittsburgh, Pa.

RABIES IN ANIMALS.**Alabama.**

During the week ended December 1, 1917, five positive cases of rabies in animals were reported in Alabama, as follows: One case each in Colbert, Elmore, Montgomery, Morgan, and Shelby Counties.

City Reports for Week Ended Nov. 24, 1917.

During the week ended November 24, 1917, two cases of rabies in animals were reported in Kansas City, Mo.; and one case was reported in Newark, N. J.

SCARLET FEVER.

See Diphtheria, measles, scarlet fever, and tuberculosis, page 2135.

SMALLPOX.

Connecticut—Bridgeport.

On December 11, 1917, the occurrence of one case of smallpox was reported at Bridgeport, Conn., in an employee of the Remington Arms Co. All contacts have been isolated and all exposed persons vaccinated.

Maryland.

During the period from November 26 to December 10, 1917, cases of smallpox were notified in the State of Maryland as follows: Baltimore city, 10; Allegany County, Cumberland 1, near Cumberland 5; Garrett County, Avilton 9, Grantsville 5. One death from smallpox was reported at Westernport, Allegany County.

New Jersey—Jersey City—Correction.

The report of two cases of smallpox in Jersey City, N. J., published in the Public Health Reports of November 23, 1917, page 1977, was an error, no case of the disease having occurred in the city during the week ended November 3, 1917.

Ohio—Akron.

December 10, 1917, the health officer of Akron, Ohio, reported cases of smallpox notified in Akron as follows: Week ended November 17, 11; November 24, 25; December 1, 28; December 8, 5.

Miscellaneous State Reports.

Place.	Cases.	Deaths.	Place.	Cases.	Deaths.
Indiana (Oct. 1-31):			South Dakota—Continued.		
Adams County.....	12	.....	Minnehaha County.....	11	.....
Allen County.....	7	.....	Walworth County.....	1	.....
Benton County.....	10	.....	Ziebach County.....	2	.....
Brown County.....	5	.....	Total.....	38	.....
Clay County.....	10	.....	Virginia (Oct. 1-31):		
Dekalb County.....	2	.....	Accomac County.....	4	.....
Fountain County.....	2	.....	Amherst County.....	3	.....
Huntington County.....	2	.....	Caroline County.....	2	.....
Jay County.....	1	.....	Chesterfield.....	4	.....
Johnson County.....	35	.....	Grayson County.....	6	.....
Knox County.....	31	.....	Roanoke County—		
Lawrence County.....	2	.....	Roanoke.....	1	.....
Madison County.....	6	.....	Tazewell County.....	35	.....
Marion County.....	75	.....	Wise County—		
Monroe County.....	6	.....	Big Stone Gap.....	1	.....
Posey County.....	4	.....	Total.....	56	.....
Shelby County.....	5	.....	Washington (Oct. 1-31):		
Tippecanoe County.....	1	.....	King County—		
Vanderburg County.....	2	.....	Seattle.....	1	.....
Vigo County.....	4	.....	Pend Oreille County.....	1	.....
Total.....	222	.....	Pierce County.....	18	.....
South Dakota (Oct. 1-31):			Snohomish County—		
Aurora County.....	1	.....	Everett.....	1	.....
Clark County.....	2	.....	Spokane County—		
Clay County.....	12	.....	Spokane.....	1	.....
Faulk County.....	4	.....	Yakima County—		
Hamlin County.....	1	.....	Mapton.....	4	.....
Kingsbury County.....	3	.....	Total.....	26	.....
Lake County.....	1	.....		

SMALLPOX—Continued.

City Reports for Week Ended Nov. 24, 1917.

Place.	Cases.	Deaths.	Place.	Cases.	Deaths.
Alton, Ill.	4	.....	Lincoln, Nebr.	12	.....
Ann Arbor, Mich.	3	.....	Lorain, Ohio	1	.....
Austin, Tex.	1	.....	Memphis, Tenn.	3	.....
Butte, Mont.	24	.....	Milwaukee, Wis.	9	.....
Cairo, Ill.	1	.....	Minneapolis, Minn.	23	.....
Chicago, Ill.	5	.....	Niagara Falls, N. Y.	2	.....
Cincinnati, Ohio.	2	.....	Oklahoma City, Okla.	2	.....
Cleveland, Ohio.	26	.....	Omaha, Nebr.	77	.....
Columbus, Ohio.	4	.....	Philadelphia, Pa.	1	.....
Cumberland, Md.	10	.....	Pittsburgh, Pa.	1	.....
Dayton, Ohio.	2	.....	Pontiac, Mich.	1	.....
Denver, Colo.	18	.....	Portland, Me.	1	.....
Detroit, Mich.	38	.....	Quincy, Ill.	1	.....
Evansville, Ind.	2	.....	St. Joseph, Mo.	3	.....
Flint, Mich.	5	.....	St. Louis, Mo.	17	.....
Fort Worth, Tex.	5	.....	St. Paul, Minn.	22	.....
Grand Rapids, Mich.	7	.....	Salt Lake City, Utah	8	.....
Harrisburg, Pa.	2	.....	Sioux City, Iowa	5	.....
Indianapolis, Ind.	20	.....	Springfield, Ohio	1	.....
Johnstown, Pa.	1	.....	Superior, Wis.	2	.....
Kansas City, Kans.	30	.....	Toledo, Ohio.	5	.....
Kansas City, Mo.	67	.....	Topeka, Kans.	1	.....
La Crosse, Wis.	4	.....	Wheeling, W. Va.	1	.....
Leavenworth, Kans.	1	.....		

TETANUS.

City Reports for Week Ended Nov. 24, 1917.

Place.	Cases.	Deaths.	Place.	Cases.	Deaths.
Berlin, N. H.	.....	1	New York, N. Y.	.....	1
Chicago, Ill.	.....	1	Philadelphia, Pa.	1	.....
Cleveland, Ohio.	2	2	Rochester, N. Y.	2	.....
Long Beach, Cal.	1	.....	Wilmington, Del.	.....	1
Memphis, Tenn.	.....	1			

TUBERCULOSIS.

See Diphtheria, measles, scarlet fever, and tuberculosis, page 2135.

TYPHOID FEVER.

State Reports for October and November, 1917.

Place.	New cases reported.	Place.	New cases reported.
Indiana (Oct. 1-31):		Indiana—Continued.	
Allen County	1	Fountain County	3
Blackford County	1	Gibson County	3
Brown County	4	Grant County	1
Carroll County	3	Greene County	1
Cass County	4	Hamilton County	3
Clark County	6	Hancock County	4
Clay County	1	Harrison County	2
Clinton County	1	Hendricks County	2
Crawford County	1	Howard County	15
Daviess County	7	Huntington County	4
Decatur County	8	Jackson County	4
DeKalb County	1	Jay County	5
Delaware County	11	Jennings County	2
Dubois County	4	Johnson County	1
Elkhart County	4	Kosciusko County	2
Fayette County	2	Lake County	6
Floyd County	3	Laporte County	14

TYPHOID FEVER—Continued.

State Reports for October and November, 1917—Continued.

Place.	New cases reported.	Place.	New cases reported.
Indiana—Continued.		South Dakota (Oct. 1-31):	
Lawrence County.....	3	Charles Mix County.....	4
Marion County.....	20	Codington County.....	3
Marshall County.....	1	Davison County.....	1
Martin County.....	3	Day County.....	3
Miami County.....	7	Deuel County.....	1
Monroe County.....	2	Faulk County.....	1
Montgomery County.....	1	Hand County.....	1
Owen County.....	5	Jackson County.....	1
Parke County.....	2	Jerauld County.....	1
Perry County.....	1	Kingsbury County.....	2
Posey County.....	3	Minnehaha County.....	3
Putnam County.....	3	Roberts County.....	3
Rush County.....	3	Spink County.....	2
Shelby County.....	1	Tripp County.....	2
St. Joseph County.....	30	Walworth County.....	2
Sullivan County.....	1		
Switzerland County.....	3		
Tippecanoe County.....	7		
Tipton County.....	2	Total.....	30
Vanderburg County.....	10		
Vermilion County.....	1	Virginia (Oct. 1-31):	
Vigo County.....	4	Accomac County.....	5
Wabash County.....	1	Accomac.....	1
Warren County.....	2	Bloxom.....	2
Warriek County.....	1	Chincoteague.....	3
Washington County.....	4	Albemarle County.....	3
Wayne County.....	6	Alleghany County.....	5
Wells County.....	1	Lowmoor.....	2
White County.....	4	Amelia County.....	11
Total.....	266	Appomattox County.....	1
		Augusta County.....	8
Massachusetts (Nov. 1-30):		Bedford County.....	1
Berkshire County—		Bland County.....	3
Adams (town).....	2	Botetourt County.....	2
North Adams.....	4	Buchanan.....	3
Pittsfield.....	3	Brunswick County.....	8
Bristol County—		Lawrenceville.....	1
Fall River.....	31	Buchanan County.....	1
New Bedford.....	5	Buckingham County.....	1
Essex County—		Campbell County.....	4
Haverhill.....	1	Brookneal.....	2
Lawrence.....	2	Lynchburg.....	1
Lynn.....	4	Caroline County.....	3
Hampden County—		Carroll County.....	6
East Longmeadow (town).....	1	Charlotte County.....	6
Longmeadow (town).....	1	Culpeper County.....	1
Ludlow (town).....	1	Dickinson County.....	1
Springfield.....	12	Dinwiddie County.....	3
Middlesex County—		Essex County.....	2
Arlington (town).....	2	Fairfax County.....	2
Cambridge.....	2	Fauquier County.....	4
Everett.....	2	Floyd County.....	10
Lowell.....	2	Franklin County.....	1
Malden.....	1	Giles County.....	1
Newton.....	3	Grayson County.....	6
Somerville.....	3	Greene County.....	2
Wakefield (town).....	1	Greensville County—	
Woburn.....	1	North Emporia.....	1
Norfolk County—		Halifax County.....	1
Avon (town).....	1	Hanover County.....	10
Wellesley (town).....	1	Henrico County.....	3
Plymouth County—		Isle of Wight County.....	1
Abington (town).....	1	James City County.....	1
Wareham (town).....	2	Williamsburg.....	1
Suffolk County—		King and Queen County.....	3
Chelsea.....	1	Lancaster County.....	3
Boston.....	17	Lee County.....	15
Revere.....	1	Madison County.....	1
Worcester County—		Mathews County.....	1
Athol (town).....	1	Mecklenburg County.....	2
Blackstone (town).....	1	Montgomery County.....	2
Gardner (town).....	2	Nansemond County.....	1
Millford (town).....	1	Suffolk.....	2
Northborough (town).....	1	Nelson County.....	11
Warren (town).....	1	Northampton County.....	3
Worcester.....	6	Northumberland County.....	3
Total.....	121	Nottoway County.....	1
		Blackstone.....	5
		Orange County.....	2
		Page County.....	
		Shenandoah.....	1

TYPHOID FEVER—Continued.

State Reports for October and November, 1917—Continued.

Place.	New cases reported.	Place.	New cases reported.
Virginia—Continued.		Washington—Continued.	
Pittsylvania County.....	3	Columbia County.....	1
Schoolfield.....	6	Dayton.....	4
Prince Edward County.....	1	Douglas County.....	8
Prince George County.....	1	Bridgeport.....	1
City Point.....	1	Franklin County—	
Hopewell.....	1	Pasco.....	1
Prince William County.....	3	Grays Harbor County—	
Putlaski County.....	2	Aberdeen.....	2
Roanoke County.....	3	Cosmopolis.....	1
Roanoke.....	7	King County—	
Salem.....	3	Seattle.....	16
Rockbridge County.....	4	Kittitas County.....	1
Buena Vista.....	3	Ellensburg.....	2
Rockingham County.....	4	Klickitat County.....	1
Harrisonburg.....	8	Lincoln County.....	1
Russell County.....	10	Sprague.....	1
Dante.....	1	Okanogan County—	
Honaker.....	1	Prewster.....	2
Scott County.....	5	Omak.....	1
Gate City.....	2	Okanogan.....	2
Shenandoah County.....	7	Pacific County—	
Smyth County.....	5	Raymond.....	1
Saltville.....	1	Pierce County.....	1
Southampton County.....	3	Sumner.....	1
Stafford County.....	1	Skagit County—	
Surry County.....	7	Anacortes.....	1
Dendron.....	1	Mount Vernon.....	1
Tazewell County.....	11	Snohomish County—	
Graham.....	4	Edmonds.....	1
Pocahontas.....	7	Everett.....	2
Warren County.....	2	Spokane County—	
Warwick County.....	1	Latah.....	2
Washington County—		Spokane.....	14
Damascus.....	3	Stevens County.....	6
Westmoreland County.....	1	Colville.....	4
Wise County.....	9	Thurston County.....	1
Norton.....	2	Wahkiakum County.....	2
Big Stone Gap.....	1	Walla Walla County.....	3
Wythe County.....	3	Walla Walla.....	29
Total.....	326	Whatecom County.....	1
		Pellinham.....	1
Washington (Oct. 1-31):		Whitman County.....	1
Adams County—		Endicott.....	2
Lind.....	2	Pullman.....	2
Benton County—		Yakima County.....	13
Prosser.....	1	Granger.....	6
Chelan County.....	4	North Yakima.....	6
Cashmere.....	1	Total.....	165
Wenatchee.....	11		

City Reports for Week Ended Nov. 24, 1917.

Place.	Cases.	Deaths.	Place.	Cases.	Deaths.
Albany, N. Y.....	8		Denver, Colo.....	1	
Allentown, Pa.....	2		Detroit, Mich.....	5	1
Ann Arbor, Mich.....	2		East Chicago, Ind.....	1	1
Austin, Tex.....	1	1	Elizabeth, N. J.....	10	
Baltimore, Md.....	8	3	El Paso, Tex.....	2	
Bellingham, Wash.....	1		Erie, Pa.....	2	
Birmingham, Ala.....	4	2	Evansville, Ind.....	3	
Boston, Mass.....	3		Fall River, Mass.....	6	1
Bridgeport, Conn.....	1		Flint, Mich.....	4	
Buffalo, N. Y.....	4	1	Fort Worth, Tex.....	2	3
Cairo, Ill.....	1		Galesburg, Ill.....	5	
Cambridge, Mass.....	1		Grand Rapids, Mich.....	1	
Camden, N. J.....	1		Hagerstown, Md.....	2	
Charleston, S. C.....	2		Harrisburg, Pa.....	1	1
Chicago, Ill.....	7	1	Hartford, Conn.....	4	
Cleveland, Ohio.....	2		Haverhill, Mass.....	1	
Coffeyville, Kans.....	1		Hoboken, N. J.....	1	1

TYPHOID FEVER—Continued.**City Reports for Week Ended Nov. 24, 1917—Continued.**

Place.	Cases.	Deaths.	Place.	Cases.	Deaths.
Indianapolis, Ind.	6		Rockford, Ill.	2	
Johnstown, Pa.		1	Rock Island, Ill.	1	
Kansas City, Kans.	2		Rocky Mount, N. C.	1	
Kokomo, Ind.	2		Rutland, Vt.	1	
Lexington, Ky.		2	Sacramento, Cal.	1	
Lorain, Ohio	1		Saginaw, Mich.	1	
Los Angeles, Cal.	3		St. Joseph, Mo.		1
Lynn, Mass.	1		St. Louis, Mo.	11	1
Memphis, Tenn.	3	1	Salt Lake City, Utah.	8	
Minneapolis, Minn.	1		San Diego, Cal.		1
Mobile, Ala.	1	1	San Francisco, Cal.	5	1
Nashville, Tenn.	3		Savannah, Ga.	1	1
Newark, N. J.	5		Schenectady, N. Y.	1	
New Bedford, Mass.	1		Seattle, Wash.	1	1
New Britain, Conn.	1		Springfield, Mass.	3	
New Castle, Pa.	1		Springfield, Ohio.	8	1
New Haven, Conn.	1		Steuenville, Ind.	1	
New Orleans, La.	1		Terre Haute, Ind.		1
New York, N. Y.	25	4	Toledo, Ohio.	4	
Norfolk, Va.	2		Trenton, N. J.	1	
Norristown, Pa.	1		Troy, N. Y.	1	
North Adams, Mass.	2	1	Washington, D. C.	7	
Oklahoma City, Okla.	2		Washington, Pa.	2	
Philadelphia, Pa.	6		Watertown, N. Y.	3	
Pittsburgh, Pa.	3		Wheeling, W. Va.	13	2
Pittsfield, Mass.	2		Wichita, Kans.	8	1
Pontiac, Mich.	2		Wilmetton, Del.		1
Portland, Oreg.	3	2	Winston-Salem, N. C.	2	
Providence, R. I.	1		Worcester, Mass.	4	
Richmond, Va.	1				

TYPHUS FEVER.**Kentucky—Louisville.**

On December 11, 1917, one case of typhus fever of mild type was reported in Louisville, Ky.

DIPHTHERIA, MEASLES, SCARLET FEVER, AND TUBERCULOSIS.**State Reports for October and November, 1917.**

State.	Cases reported.			State.	Cases reported.		
	Diphtheria.	Measles.	Scarlet fever.		Diphtheria.	Measles.	Scarlet fever.
Indiana (Oct. 1-31).	788	58	371	Virginia (Oct. 1-31).	281	134	104
Massachusetts (Nov. 1-30).	1,181	1,232	587	Washington (Oct. 1-31).	42	26	64
South Dakota (Oct. 1-31).	8	39	76				

DIPHTHERIA, MEASLES, SCARLET FEVER, AND TUBERCULOSIS— Continued.

City Reports for Week Ended Nov. 24, 1917.

City.	Population as of July 1, 1916 (estimated by U. S. Census Bureau).	Total deaths from all causes.	Diphtheria.		Measles.		Scarlet fever.		Tuberculosis.	
			Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
Over 500,000 inhabitants:										
Baltimore, Md.	589,621	26	2	14	2	18	18	20		
Boston, Mass.	756,476	216	107	8	55	1	36	64	23	
Chicago, Ill.	2,497,722	615	294	27	49	107	375	63		
Cleveland, Ohio.	674,673	178	60	4	2	17	27	23		
Detroit, Mich.	571,784	193	90	7	45	1	51	26	17	
Los Angeles, Cal.	503,812	123	14	5	7	7	51	15		
New York, N. Y.	5,602,841	1,417	278	29	235	7	137	4	488	
Philadelphia, Pa.	1,700,518	513	96	11	20	41	1	80	66	
Pittsburgh, Pa.	579,080	189	39	6	38	13	36	8		
St. Louis, Mo.	757,309	188	79	3	15	46	3	44	10	
From 300,000 to 500,000 inhabitants:										
Buffalo, N. Y.	468,558	116	21	3	7	11	35	14		
Cincinnati, Ohio.	410,476	124	23	2	5	8	1	17	16	
Jersey City, N. J.	306,345	66	21	3	13	1	7	11	8	
Milwaukee, Wis.	436,535	86	8	1	36	34	1	14	4	
Minneapolis, Minn.	363,454	30	6	6	6	6	33	14		
Newark, N. J.	408,894	110	21	4	19	20	27	22		
New Orleans, La.	371,747	33	6	6	9	27	13	5		
San Francisco, Cal.	463,516	126	15	11	6	36	6	8		
Seattle, Wash.	348,639	48	4	1	13	5	12	5		
Washington, D. C.	363,980	118	71	40	28	22	8			
From 200,000 to 300,000 inhabitants:										
Columbus, Ohio.	214,878	63	9	1	4	21	8	4		
Denver, Colo.	260,800	51	17	2	2	12	1	8		
Indianapolis, Ind.	271,708	48	5	5	15	11	4	5		
Kansas City, Mo.	297,847	77	6	1	8	8	2	9		
Portland, Oreg.	295,463	46	2	1	1	4	8	6		
Providence, R. I.	251,960	80	13	1	1	15	36	9		
Rochester, N. Y.	256,417	75	14	2	10	28	8	6		
St. Paul, Minn.	247,232	58	21	1	2	5	1	20	10	
From 100,000 to 200,000 inhabitants:										
Albany, N. Y.	101,199	7	1	5	6	7	3	6		
Atlanta, Ga.	190,558	77	4	1	26	9	5	6		
Birmingham, Ala.	181,762	35	11	1	3	2	9	6		
Bridgeport, Conn.	121,579	30	16	4	4	4	7	7		
Cambridge, Mass.	112,981	7	30	5	2	11	1	3		
Camden, N. J.	105,233	41	8	6	7	1	5	3		
Dayton, Ohio.	127,224	40	6	1	107	7	1	1		
Fall River, Mass.	128,366	32	1	3	5	7	7	4		
Fort Worth, Tex.	104,562	28	4	3	7	6	5	3		
Grand Rapids, Mich.	128,291	44	14	1	3	7	6	4		
Hartford, Conn.	110,900	29	2	3	4	3	6	5		
Lawrence, Mass.	100,560	38	4	1	3	8	3	3		
Lowell, Mass.	113,245	17	5	49	3	17	7	1		
Lynn, Mass.	102,425	54	19	9	4	3	6	6		
Memphis, Tenn.	148,995	43	2	7	7	8	3	3		
Nashville, Tenn.	117,057	34	4	6	5	7	3	3		
New Bedford, Mass.	118,158	3	1	6	2	7	3	3		
New Haven, Conn.	149,685	36	6	5	5	6	5	6		
Oakland, Cal.	198,604	38	4	3	3	24	5	4		
Omaha, Nebr.	165,470	40	11	2	2	9	4	3		
Reading, Pa.	109,381	45	12	5	4	6	3	2		
Richmond, Va.	156,687	24	5	58	29	3	3	3		
Salt Lake City, Utah.	117,399	36	14	2	2	12	7	1		
Springfield, Mass.	105,942	41	19	15	1	12	4	4		
Syracuse, N. Y.	155,624	9	9	4	4	5	2	2		
Tacoma, Wash.	112,770	50	19	1	4	4	4	4		
Toledo, Ohio.	191,654	41	17	1	2	1	5	2		
Trenton, N. J.	111,593	49	12	1	2	2	11	2		
Worcester, Mass.	163,314	10	13	1	3	1	2	1		
From 50,000 to 100,000 inhabitants:										
Allentown, Pa.	63,505	57	660	8	2	3	1	2		
Atlantic City, N. J.	57,660	69	893	7	3	3	1	1		
Bayonne, N. J.	57,653	53	973	14	3	3	5	1		
Berkeley, Cal.	67,440	60	852	25	5	3	4	1		
Binghamton, N. Y.	53,973	16	2	2	2	2	4	1		
Brockton, Mass.	60,734	25	5	3	3	3	2	2		
Canton, Ohio.	60,852	21	3	3	3	3	1	1		
Charleston, S. C.	57,144	21	3	3	3	3	1	1		
Covington, Ky.										

DIPHTHERIA, MEASLES, SCARLET FEVER, AND TUBERCULOSIS— Continued.

City Reports for Week Ended Nov. 24, 1917—Continued.

City.	Popula- tion as of July 1, 1916 (estimated by U. S. Census Bureau).	Total deaths from all causes.	Diphtheria.		Measles.		Scarlet fever.		Tuber- culosis.	
			Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
From 50,000 to 100,000 inhabit- ants—Continued.										
Duluth, Minn.	94,495	18	10		11		6	1	1	
Elizabeth, N. J.	86,690	20	5		7		7		1	
El Paso, Tex.	63,705	21	2				3			
Erie, Pa.	75,195		9		2		4		11	
Evansville, Ind.	76,078	15	6		1		2		3	
Flint, Mich.	54,772	7	10	1			12		6	
Harrisburg, Pa.	72,015	31	17	1	5		13		5	
Hoboken, N. J.	77,214	16	2		9		2			
Johnstown, Pa.	68,529	16	4	1			7		4	
Kansas City, Kans.	99,437		4				6			
Lancaster, Pa.	50,833		2				1			
Malden, Mass.	51,155	8	2		5		2		5	
Manchester, N. H.	78,283	30	2		17		3		3	
Mobile, Ala.	58,221	25			2		1			
New Britain, Conn.	53,794	16	1	1			4			
Norfolk, Va.	89,612		5		15					
Oklahoma City, Okla.	92,943	19	4						1	
Passaic, N. J.	71,744	19	7		1					
Pawtucket, R. I.	59,411	19	7						1	
Portland, Me.	67,867	18	2		104					
Rochford, Ill.	55,185	6					1		3	
Sacramento, Cal.	66,995	33	2				6		1	
Saginaw, Mich.	53,642	14	4				1			
St. Joseph, Mo.	85,266	23	8		1		1		1	
San Diego, Cal.	57,370		4		1				2	
Savannah, Ga.	68,805	30	9		7		2		4	
Schenectady, N. Y.	99,519	13	1				2		6	
Sionx City, Iowa.	57,078						10			
Somerville, Mass.	87,039	14	9	2	5			1	2	
South Bend, Ind.	68,946	19					2			
Springfield, Ill.	61,120	19	1		1				1	
Springfield, Ohio.	51,550	21			1				2	
Terre Haute, Ind.	66,083	21	4	1					3	
Troy, N. Y.	77,916		2				4	1	5	
Wichita, Kans.	70,722		3				12		4	
Wilkes-Barre, Pa.	76,776	16	6		6		2			
Wilmington, Del.	94,265	39	4				1			
York, Pa.	51,656		5				2		1	
From 25,000 to 50,000 inhabit- ants:										
Alameda, Cal.	27,782	1	1		2		2			
Austin, Tex.	24,814	13								
Bellingham, Wash.	32,985	9			1					
Brookline, Mass.	32,730	13	1				4			
Butler, Pa.	27,672	8					4			
Butte, Mont.	43,425				2		11		6	
Chelsea, Mass.	46,192	12	7	1	7		1		3	
Chicopee, Mass.	29,319	9	1		3					
Cumberland, Md.	26,074	2	1		1				2	
Danville, Ill.	32,261	8	1				1		1	
Davenport, Iowa.	48,811		1		1		2			
Dubuque, Iowa.	39,873		1							
East Chicago, Ind.	28,743	7	2		1				1	
East Orange, N. J.	42,458	9			44					
Elgin, Ill.	28,203	4	1				1		1	
Everett, Mass.	39,233	8	5	1	19	1	4		1	
Everett, Wash.	35,486	7			1					
Fitchburg, Mass.	41,781	6	4						3	
Galveston, Tex.	41,803	12	2	1	2				1	
Green Bay, Wis.	29,353	14	1							
Hagerstown, Md.	25,679		1				1			
Haverhill, Mass.	48,477	10			1		1		2	
Jackson, Mich.	35,363	17	1		2		12		5	
Kalamazoo, Mich.	48,886	18	3		12		1		2	
Kenosha, Wis.	31,576	12	8	2	1		11	1		
Kingston, N. Y.	26,771	10								
Knoxville, Tenn.	38,676						8		2	
La Crosse, Wis.	31,677	10	1				1			
Lexington, Ky.	41,097	18			10		1			
Lima, Ohio.	35,384	8	7		1		1			
Lincoln, Nebr.	46,515		2	1			5			
Long Beach, Cal.	27,587	10					1		2	
Lorain, Ohio.	36,964		4				3			

DIPHTHERIA, MEASLES, SCARLET FEVER, AND TUBERCULOSIS— Continued.

City Reports for Week Ended Nov. 24, 1917—Continued.

City.	Population as of July 1, 1916 (estimated by U. S. Census Bureau).	Total deaths from all causes.	Diphtheria.		Measles.		Scarlet fever.		Tuberculosis.	
			Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
From 25,000 to 50,000 inhabitants—continued.										
Lynchburg, Va.	32,940	13							3	1
McKeesport, Pa.	47,521	21	5		6		2			
Medford, Mass.	26,274	11	3	1	1		2		1	
Montclair, N. J.	26,718	6					1			
Nashua, N. H.	27,277	9	7							1
Newburgh, N. Y.	29,603	4	1		25		1			1
New Castle, Pa.	41,173	1	2							
Newport, Ky.	31,227	7	1				1	1		
Newport, R. I.	30,108	4	3				4			1
Newton, Mass.	43,715	5	3	1			3			
Niagara Falls, N. Y.	37,353	11	2		1		2		2	1
Norristown, Pa.	31,401	6		1						
Orange, N. J.	35,080	12			3		3		3	3
Pasadena, Cal.	46,450	9			1					2
Perth Amboy, N. J.	41,185	10	1							
Pittsfield, Mass.	38,623	7					3			2
Portsmouth, Va.	39,651	3	2		1		4			
Quincy, Ill.	36,798	6	7	1						
Quincy, Mass.	38,176		2				2		1	
Racine, Wis.	46,486	8					1			
Roanoke, Va.	47,274	11	2						1	1
Rock Island, Ill.	28,026	5					1			
San Jose, Cal.	38,902						2		2	
Steubenville, Ohio.	27,445	11	1				1			
Stockton, Cal.	35,358	72	1						4	3
Superior, Wis.	46,226	13	1							1
Taunton, Mass.	36,283	14	4		1		1			
Topeka, Kans.	48,726		4		2		1		1	
Waltham, Mass.	50,570	5	1				1			
Watertown, N. Y.	29,894	1			1		1		4	
West Hoboken, N. J.	43,139	4	1		1		1		2	
Wheeling, W. Va.	43,377	15		1					3	
Williamsport, Pa.	33,809		5	1			1			
Wilmington, N. C.	29,892	10	1				1			
Winston-Salem, N. C.	31,155	10	1		12		5		1	1
Zanesville, Ohio.	30,863	10					1			
From 10,000 to 25,000 inhabitants:										
Alton, Ill.	22,874	10	2		3					2
Ann Arbor, Mich.	15,010	14	5		1				1	1
Berlin, N. H.	13,599	6		1						
Braddock, Pa.	21,685		3		2					
Cairo, Ill.	15,794	5							3	
Clinton, Mass.	13,075	2								
Coffeyville, Kans.	17,548						1		1	
Concord, N. H.	22,669	9	2	1			4		2	
Galesburg, Ill.	24,276	5	1		2					
Kearny, N. J.	23,539	6			25		3		4	
Kokomo, Ind.	20,930	6								
Leavenworth, Kans.	19,363	5	1		1				1	
Long Branch, N. J.	15,395	1	1							
Marinette, Wis.	14,610	5					1			
Melrose, Mass.	17,445	7	1						1	
Morristown, N. J.	13,284	3								
Nanticoke, Pa.	23,126	7					2			
Newburyport, Mass.	15,243	2	3		1				2	
New London, Conn.	20,985	8	2		1					1
North Adams, Mass.	22,019	4							3	
Northampton, Mass.	19,926	11	1				1			4
Plainfield, N. J.	23,805	7	4						2	
Pontiac, Mich.	17,524	9	1		1		5		2	1
Portsmouth, N. H.	11,666						8			
Rocky Mount, N. C.	12,067	6								
Rutland, Vt.	14,831	4								1
Sandusky, Ohio.	20,193	5							3	1
Saratoga Springs, N. Y.	13,821	3								
South Bethlehem, Pa.	24,204		1							
Steelton, Pa.	15,548	2	3				1			
Washington, Pa.	21,618						2			
Wilkesburg, Pa.	23,228	5	1				1			
Woburn, Mass.	15,969	4								

¹ Population Apr. 15, 1910; no estimate made.

FOREIGN.

CHINA.

Examination of Rats—Shanghai.

During the four weeks ended October 13, 1917, 888 rats were examined at Shanghai. No plague infection was found. The last plague-infected rat at Shanghai was reported found May 6, 1916.

CUBA.

Communicable Diseases—Habana.

Communicable diseases have been notified at Habana as follows:

Disease.	Nov. 1-10, 1917.		Remaining under treatment Nov. 10, 1917.	Disease.	Nov. 1-10, 1917.		Remaining under treatment Nov. 10, 1917.
	New cases.	Deaths.			New cases.	Deaths.	
Diphtheria.....	8	.....	4	Paratyphoid fever..	3	1	3
Leprosy.....	.....	.....	10	Smallpox.....	1	.....	1
Malaria.....	27	.....	45	Typhoid fever.....	28	8	93
Measles.....	.....	.....	1				

NORWAY.

Leprosy—1910, and 1911-1915.

At the close of the year 1910, 326 lepers were reported present in Norway, 203 of these being domiciled in hospitals and 123 outside of hospitals. The disease was reported from 76 communes. During the period 1911-1915, leprosy made its appearance in 20 communes and disappeared in 38. The total number of new cases notified during the period 1911-1915 was 51. At the close of the year 1915, 235 cases of leprosy were known to exist in the kingdom, 146 being domiciled in hospitals and 89 outside of hospitals. Of the total number, 68 were affected with the tuberculous form of the disease, 160 with the anesthetic, and 7 with the mixed form.

TURKEY IN ASIA.

Plague—Trebizond.

Plague was reported present at Trebizond, Turkey in Asia, December 8, 1917.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER.**Reports Received During the Week Ended Dec. 14, 1917.¹****CHOLERA.**

Place.	Date.	Cases.	Deaths.	Remarks.
India:				
Rangoon.....				June 3-9, 1917: Cases, 1. June 17-23, 1917: Cases, 3; deaths, 2.
Philippine Islands:				
Provinces.....				Oct. 14-20, 1917: Cases, 200; deaths, 104.
Antione.....	Oct. 14-20.....	31	19	
Bohol.....	do.....	22	21	
Cebu.....	do.....	50	14	
Iloilo.....	do.....	15	5	
Mindanao.....	do.....	8	5	
Negros Occidental.....	do.....	59	34	
Negros Oriental.....	do.....	15	6	
Provinces.....				Oct. 21-27, 1917: Cases, 166; deaths, 82.
Antione.....	Oct. 21-27.....	15	12	
Bohol.....	do.....	18	13	
Cebu.....	do.....	4		
Mindanao.....	do.....	45	27	
Negros Occidental.....	do.....	41	22	
Negros Oriental.....	do.....	43	8	

PLAGUE.

Brazil:				
Pernambuco.....	Sept. 16-30.....	2		Jan. 1-Oct. 18, 1917: Cases 727; deaths, 397.
Egypt:				
Alexandria.....	Oct. 12-15.....	2	1	
Suez.....	Oct. 14-16.....	1	1	
India:				
Rangoon.....				June 3-9, 1917: Cases, 25; deaths, 24. June 17-23, 1917: Cases, 28; deaths, 28.
Turkey in Asia:				
Trebizond.....	Dec. 8.....			Present.

SMALLPOX.

Australia:				
New South Wales.....				Oct. 12-23, 1917: Cases, 5. Near Newcastle.
Abermain.....	Oct. 12-25.....	2		
Warren.....	Oct. 12-13.....	3		
Brazil:				
Bahia.....	Sept. 30-Oct. 13.....	1	1	
Rio de Janeiro.....	Sept. 23-29.....	102	24	
China:				
Mukden.....	Oct. 21-27.....			Present.
Shanghai.....	Oct. 22-28.....	3	3	Cases among foreign population; deaths among Chinese.
Cuba:				
Habana.....	Dec. 5.....	1		
India:				
Rangoon.....				June 3-9, 1917: Cases, 2. June 17-23, 1917: Cases, 7; deaths, 2.
Indo-China:				
Saigon.....	Oct. 15-21.....	9	6	
Mexico:				
Mexico City.....	Oct. 28-Nov. 10....	15		
Philippine Islands:				
Manila.....	Oct. 14-20.....	1		Varioloid.
Portugal:				
Lisbon.....	Oct. 28-Nov. 3....	1		
Spain:				
Seville.....	Sept. 1-30.....		6	
Union of South Africa:				
Johannesburg.....	Aug. 1-31.....	4		
Do.....	Sept. 1-30.....	17		

¹ From medical officers of the Public Health Service, American consuls, and other sources.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued.

Reports Received During the Week Ended Dec. 14, 1917—Continued.

TYPHUS FEVER.

Place.	Date.	Cases.	Deaths.	Remarks.
China:				
Tsingtao.....	Oct. 14-20.....	1		
Japan:				
Nagasaki.....	Oct. 29-Nov. 4....	7	2	
Mexico:				
Mexico City.....	Oct. 28-Nov. 10....	166		
Switzerland:				
Basel.....	Oct. 14-27.....	3		
Zurich.....	Oct. 28-Nov. 3....	1		

YELLOW FEVER.

Venezuela:				
Coro.....	Oct. 28-Nov. 7....	1		From the last part of July to Nov. 7, 1917, 10 cases reported.

Reports Received from June 30 to Dec. 7, 1917.

CHOLERA.

Place.	Date.	Cases.	Deaths.	Remarks.
India:				
Bassein.....	Apr. 1-May 5.....		8	
Bombay.....	June 24-31.....	1	1	
Do.....	July 8-Sept. 22....	20	11	
Calcutta.....	Apr. 29-June 33....		347	
Do.....	July 1-Sept. 1.....		57	
Karachi.....	Sept. 9-29.....	7	5	
Madras.....	Apr. 22-June 39....		4	
Do.....	July 1-Sept. 29....	112	68	
Mandalay.....	May 6-June 31.....		2	
Do.....	July 29-Aug. 25....		2	
Moulmein.....	May 13-June 2.....		3	
Pasokku.....	Apr. 29-May 5.....		1	
Pegu.....	May 27-June 33....		5	
Do.....	July 1-7.....		7	
Prome.....	July 29-Aug. 11....		1	
Rangoon.....	Apr. 21-June 33....	31	17	
Do.....	July 8-Sept. 8.....	10	8	June 10-16, 1917: Cases, 1; deaths, 1.
Indo-China:				
Provinces.....				Feb. 1-June 30, 1917: Cases, 1,273; deaths, 805. July 1-31, 1917: Cases, 522; deaths, 314.
Anam.....	Feb. 1-June 30.....	230	191	
Do.....	July 1-31.....	85	47	
Cambodia.....	Feb. 1-June 30.....	79	51	
Do.....	July 1-31.....	74	53	
Cochin-China.....	Feb. 1-June 30.....	878	543	
Do.....	July 1-31.....	359	214	
Laos.....	June 1-31.....	1		
Tonkin.....	Feb. 1-June 30.....	35	21	
Do.....	July 1-31.....	3		
Saigon.....	Apr. 23-May 27....	163	108	
Do.....	July 2-Sept. 30....	49	33	
Japan.....				Jan.-July, 1917: Cases, 391, occurring in 16 provinces and districts.
Tokyo.....	Sept. 12.....	2		Sept. 12, 1917: Cases, 252. In 5 provinces and districts.
Java:				
East Java.....	Apr. 2-8.....	1		
Do.....	July 9-28.....	3	3	
Mid Java.....	July 16-Oct. 2.....	2	2	
West Java.....				
Batavia.....	Apr. 13-July 5.....	7	2	Apr. 13-July 5, 1917: Cases, 71; deaths, 31. July 6-Oct. 11, 1917: Cases, 601; deaths, 343.
Do.....	July 6-Oct. 11.....	78	23	

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued.

Reports Received from June 30 to Dec. 7, 1917—Continued.

CHOLERA—Continued.

Place.	Date.	Cases.	Deaths.	Remarks.
Persia:				
Mazanderan Province—				
Amir Kela.....	Feb. 3.....	1		
Barfourouche.....	Jan. 15-17.....	4		
Do.....	July 28.....	4	1	
Demavend.....	July 29.....	11	6	
Hamze Kela.....	Jan. 17.....	1		
Machidessar.....	Jan. 31.....	3		
Sabzevar.....	Aug. 20-29.....	19	14	
Sari.....	July 25-Aug. 5.....	179	98	
Tabriz.....				Aug. 4, 1917: In village of Ozounleh, vicinity of Tabriz, about 7 cases daily.
Philippine Islands:				
Manila.....	June 17-23.....	1		
Do.....	Aug. 5-25.....	4		Sert. 2-8, 1917: 1 case. Not previously reported.
Provinces				
Agusan.....	July 15-28.....	12	2	
Albay.....	May 20-June 30.....	113	76	
Do.....	July 2-Sept. 1.....	73	43	
Ambos Camarines.....	June 3-9.....	2	1	
Do.....	July 22-Aug. 11.....	26	15	
Antique.....	Sert. 16-Oct. 13.....	77	34	
Bataan.....	July 8-14.....	1		
Batangas.....	June 17-23.....	1	1	
Bohol.....	May 20-June 30.....	368	251	
Do.....	July 1-Oct. 13.....	387	293	
Capiz.....	June 3-30.....	62	40	
Do.....	July 1-Oct. 6.....	66	46	
Cebu.....	June 2-30.....	231	150	
Do.....	July 1-Oct. 13.....	627	369	
Iloilo.....	do.....	128	78	
Leyte.....	June 10-30.....	14	5	
Do.....	July 1-Sept. 15.....	819	512	
Misamis.....	July 8-Aug. 4.....	237	117	
Mindanao.....	July 20-Sept. 29.....	565	316	
Negros Occidental.....	Sept. 30-Oct. 13.....	48	27	
Negros Oriental.....	July 1-Oct. 13.....	463	299	
Rizal.....	June 24-30.....	1		
Do.....	July 1-7.....	1		
Romblon.....	July 22-28.....	1	1	
Samar.....	July 15-Sept. 22.....	138	75	
Sorsogon.....	June 3-30.....	196	88	
Do.....	July 1-Aug. 25.....	274	133	
Surigao.....	July 20-Aug. 25.....	16	10	
Tayabas.....	June 3-30.....	7	7	
Do.....	July 1-Sept. 29.....	15	14	
Zamboanga.....	July 15-21.....	17	16	

PLAGUE.

Arabia:				
Aden.....	May 3-July 4.....		43	Apr. 8-May 14, 1917: Cases, 69; deaths, 51.
Bahrein Islands.....				In Persian Gulf. Present Apr. 3, 1917.
Brazil:				
Bahia.....	June 10-30.....	12	8	
Do.....	July 8-Sept. 15.....	6	2	
Pernambuco.....	July 16-Aug. 15.....	4	1	
Ceylon:				
Colombo.....	Apr. 8-June 23.....	41	33	
Do.....	July 6-Sept. 22.....	5	8	
China:				
Amoy.....	Apr. 29-May 5.....			Present and in vicinity.
Do.....	July 1-7.....	6	6	Present Aug. 10.
Hongkong.....	May 13-June 30.....	20	13	
Do.....	July 8-Aug. 18.....	4	3	
Kwangtung Province—				
Ta-pu district.....	June 2.....			Present.
Ecuador:				
Estancia Vieja.....	Feb. 1-28.....	1		
Guayaquil.....	do.....	56	29	
Do.....	Mar. 1-Apr. 30.....	42	22	
Do.....	July 1-Aug. 31.....	4		

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued.

Reports Received from June 30 to Dec. 7, 1917—Continued.

PLAGUE—Continued.

Place.	Date.	Cases.	Deaths.	Remarks.
Ecuador—Continued.				
Milagro.....	Mar. 1-31.....	1	—	
Do.....	Apr. 1-30.....	1	1	
Nobol.....	Feb. 1-28.....	2	—	
Salitre.....	.....do.....	1	—	
Do.....	Mar. 1-31.....	1	1	
Taura.....	Feb. 1-28.....	3	2	
Egypt.				
Alexandria.....	June 21-27.....	6	4	Jan. 1-Oct. 4, 1917: Cases, 724; deaths, 335.
Do.....	July 31-Sept. 11.....	5	1	
Port Said government.....	Apr. 30-May 19.....	4	3	
Port Said.....	June 25.....	1	—	
Do.....	July 28-29.....	1	1	
Provinces—				
Fayoum.....	May 11-June 26.....	14	7	
Galioubeh.....	June 28.....	1	—	
Girgeh.....	May 17.....	—	1	
Minieh.....	May 12-June 28.....	4	3	
Do.....	July 29-Sept. 11.....	9	—	
Siout.....	May 12.....	3	1	
Suez government.....	Apr. 30-June 2.....	23	9	
Suez.....	May 12-June 28.....	38	23	
Great Britain:				
Graveend.....	Aug. 13-24.....	3	1	From s. s. Matiana.
London.....	May 3-8.....	2	—	2 in hospital at port. From s. s. Sardinia from Australia and oriental ports.
India:				
Bassein.....	Apr. 1-June 30.....	—	54	Apr. 15-June 30, 1917: Cases, 43,992; deaths, 30,197. July 1-Sept. 22, 1917: Cases, 71,636; deaths, 53,000.
Do.....	July 1-Sept. 16.....	—	27	
Bombay.....	Apr. 22-June 30.....	486	397	
Do.....	July 1-Sept. 22.....	379	307	
Calcutta.....	Apr. 29-June 2.....	—	38	
Do.....	July 15-21.....	—	4	
Henzada.....	Apr. 1-June 30.....	—	35	
Do.....	Aug. 12-Sept. 15.....	—	7	
Karachi.....	Apr. 22-June 30.....	468	413	
Do.....	July 1-Sept. 29.....	40	34	
Madras Presidency.....	Apr. 22-June 30.....	201	250	
Do.....	July 1-Sept. 29.....	3,565	2,562	
Mandalay.....	Apr. 8-May 12.....	—	9	
Do.....	July 29-Sept. 15.....	—	34	
Moulmein.....	Apr. 1-June 30.....	—	74	
Do.....	July 1-Sept. 1.....	—	33	
Myingyan.....	Apr. 1-7.....	—	1	
Pegu.....	May 27-June 2.....	—	2	
Do.....	July 29-Sept. 15.....	—	1	
Rangoon.....	Apr. 15-June 30.....	183	169	June 10-16, 1917: Cases, 19; deaths, 16.
Do.....	July 1-Sept. 8.....	457	428	
Toungoo.....	Apr. 8-14.....	—	2	
Do.....	July 29-Sept. 1.....	—	12	
Indo-China:				
Provinces				
Anam.....	Feb. 1-June 30.....	232	131	Feb. 1-June 30, 1917: Cases, 730; deaths, 491; July 1-31, 1917: Cases, 69; deaths, 45.
Do.....	July 1-31.....	13	9	
Cambodia.....	Feb. 1-June 30.....	132	115	
Do.....	July 1-31.....	10	—	
Cochin-China.....	Feb. 1-June 30.....	219	133	
Do.....	July 1-31.....	43	24	
Kwang-Chow-Wan.....	May 1-June 30.....	34	23	
Tonkin.....	Feb. 1-June 30.....	113	89	
Do.....	July 1-31.....	3	2	
Saigon.....	Apr. 23-June 3.....	47	26	
Do.....	Sept. 9-Oct. 7.....	9	6	
Japan:				
Aichi Ken.....	Jan.-July.....	22	—	
Miye Ken.....	.....do.....	3	—	
Java:				
East Java				
Gjocjarta Residency.....	Apr. 23-May 6.....	1	1	Apr. 2-May 20, 1917: Cases, 29; deaths, 23. July 30-Aug. 20, 1917: Cases, 4; deaths, 4.
Kediri Residency.....	.....do.....	1	1	
Samarang Residency.....	Apr. 23-May 20.....	3	3	
Surabaya Residency.....	Apr. 2-May 20.....	18	18	
Do.....	July 8-28.....	4	4	
Surakarta Residency.....	.....do.....	6	6	

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued.

Reports Received from June 30 to Dec. 7, 1917—Continued.

PLAGUE—Continued.

Place.	Date.	Cases.	Deaths.	Remarks.
Persia:				
Mohammera.....	May 1.....			Present.
Peru:				May 13-31, 1917: Cases, 15. June 1-July 31, 1917: Cases, 36.
Departments—				
Ancachs.....	July 1-31.....	3		At Casma.
Arcuipa.....	May 16-July 31.....	10		At Mollendo.
Callao.....	do.....	5		At Callao.
I amí ayeque.....	do.....	3		At Chiclayo.
Libertad.....	May 16-21.....	7		At Salaverry, San Pedro, and Trujillo. July 1-31, 1917: At Trujillo.
Lima.....	do.....	20		At Lima. July 1-31, 1917: Lima, city and country.
Senegal.....	Sept. 30.....			Present in interior.
Siam:				
Bangkok.....	Apr. 22-June 30.....	13	12	
Do.....	July 3-Sept. 15.....	21	19	
Straits Settlements:				
Singapore.....	June 3-16.....	2	1	
Do.....	July 1-Sept. 22.....	11	8	
Union of South Africa:				
Cape of Good Hope State—				
Craddock.....	Aug. 23.....			Present.
Glengrey district.....	Aug. 13.....			Do.
Terkla district.....	May 28.....	1	1	At Summerhill Farm.
Queenstown.....	June 6.....	1		
Orange Free State.....				Apr. 16-22, 1917: 1 case. Apr. 9-22, 1917: Cases, 26; deaths, 17.
Winburg district.....	May 28.....		1	
At sea:				
S. S. Matiana.....	July 14-18.....	9	6	En route for port of London.

SMALLPOX.

Australia:				
New South Wales.....				Apr. 27-Aug. 30, 1917: Cases, 77.
Brevarrina.....	Apr. 27-June 21.....	6		
Cessnock.....	July 25-28.....	4		
Coonabarabran.....	May 25-July 5.....	13		
Quambone.....	Apr. 27-June 21.....	2		
Warren district.....	June 22-Sept. 25.....	53		
Queensland—				
Thursday Island Quarantine Station.....	May 9.....	1		From s. s. St. Albans from Kobe via Hongkong. Vessel proceeded to Townsville, Brisbane, and Sydney, in quarantine.
Brazil:				
Bahia.....	May 6-June 30.....	4		
Do.....	July 22-Sept. 22.....	5	1	
Rio de Janeiro.....	do.....	126	31	
Do.....	July 1-Sept. 22.....	518	108	
Canada:				
Manitoba—				
Winnipeg.....	June 10-16.....	1		
Do.....	Aug. 19-Sept. 1.....	5		
New Brunswick.....	Nov. 10.....	21		Chiefly in Carleton and York Counties. One case notified in Northumberland County.
Nova Scotia—				
Halifax.....	June 18-July 7.....	3		
Port Hawkesbury.....	June 17-30.....			Present in district.
Ontario—				
Ottawa.....	July 30-Aug. 5.....	1		
Sarnia.....	Nov. 11-17.....	1		
Windsor.....	Sept. 30-Nov. 3.....	4		
Ceylon:				
Colombo.....	May 6-12.....	1		
China:				
Amoy.....	Apr. 29-May 26.....			Present and in vicinity.
Do.....	July 1-Sept. 22.....			Do.
Antung.....	May 21-June 24.....	4		
Do.....	Aug. 6-Oct. 21.....	2		
Changsha.....	May 27-June 2.....	5		
Do.....	Aug. 11-17.....		7	
Chungking.....	May 6-June 23.....			Present.
Do.....	July 1-Oct. 29.....			Present and in vicinity.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued.

Reports Received from June 30 to Dec. 7, 1917—Continued.

SMALLPOX—Continued.

Place.	Date.	Cases.	Deaths.	Remarks.
China—Continued.				
Dairen.....	May 13-June 30.....	30	4	July 1-7, 1917: Present.
Do.....	July 8-28.....	6	1	
Hankow.....	June 21-31.....	2	.....
Harbin.....	Apr. 23-May 6.....	7	.....	On Chinese Eastern Ry.
Hongkong.....	May 6-June 16.....	8	7	
Do.....	Aug. 5-18.....	1	.....	Do. Present.
Manchuria Station.....	Apr. 23-29.....	1	.....
Mukden.....	May 27-June 2.....	.....	.....	Do. Do.
Do.....	July 8-Oct. 20.....	.....	.....
Shanghai.....	May 21-July 1.....	13	32	Cases foreign; deaths among natives.
Do.....	July 2-Oct. 21.....	2	18	Cases among foreign population; deaths among Chinese.
Tsitsihar Station.....	Apr. 16-22.....	1	.....	On Chinese Eastern Ry.
Tsin'tao.....	May 22-July 7.....	35	7	At another station on railway; 1 case.
Do.....	July 30-Aug. 11.....	4	1	
Chosen (Korea):				
Chemulpo.....	May 1-31.....	1	.....
Cuba:				
Habana.....	Nov. 1.....	.....	.....	From s. s. Alfonso XIII, from ports in Spain.
Ecuador:				
Guayaquil.....	Feb. 1-28.....	1	.....
Do.....	Mar. 1-Apr. 30.....	8	.....
Do.....	July 1-Aug. 31.....	12	.....
Egypt:				
Alexandria.....	Apr. 30-July 1.....	39	9	
Do.....	July 2-29.....	30	4	
Cairo.....	Feb. 12-Apr. 8.....	80	1	
France:				
Nantes.....	July 30-Aug. 5.....	1	.....
Paris.....	May 6-12.....	1	.....
Germany:				
Berlin.....	Mar. 18-Apr. 28.....	16	.....	Mar. 18-Apr. 28, 1917: Cases, 715; in cities and 32 States and districts.
Bremen.....	.....	16	.....
Charlottenberg.....	.....	18	.....
Hamburg.....	.....	50	.....
Leipzig.....	.....	20	.....
Lübeck.....	.....	2	.....
Munich.....	.....	10	.....
Stuttgart.....	.....	1	.....
Greece:				
Athens.....	July 25-30.....	.....	23	
India:				
Bombay.....	Apr. 22-June 30.....	186	75	
Do.....	July 1-Sept. 22.....	72	35	
Calcutta.....	Apr. 29-May 26.....	.....	12	
Do.....	July 29-Aug. 25.....	.....	2	
Karachi.....	Apr. 22-July 4.....	27	8	
Do.....	July 8-Sept. 1.....	5	2	
Madras.....	Apr. 22-June 30.....	80	48	
Do.....	July 1-Sept. 29.....	19	23	
Rangoon.....	Apr. 15-June 30.....	33	5	
Do.....	July 1-Sept. 1.....	11	.....	June 10-16, 1917: Cases, 9; deaths, 3.
Indo-China:				
Provinces.				
Anam.....	Feb. 1-June 30.....	1,600	257	Feb. 1-June 30, 1917: Cases, 617; deaths, 555. July 1-31, 1917: Cases, 525; deaths, 132.
Do.....	July 1-31.....	353	59	
Cambodia.....	Feb. 1-June 30.....	1,600	26	
Do.....	July 1-31.....	28	21	
Cochin-China.....	Feb. 1-June 30.....	1,267	377	
Do.....	July 1-31.....	1,000	49	
Kwang-Chow-Wan.....	Mar. 1-Apr. 30.....	4	.....
Laos.....	Apr. 1-30.....	5	1	
Do.....	July 1-31.....	10	1	
Tonkin.....	Feb. 1-June 30.....	274	30	
Do.....	July 1-31.....	4	.....
Saigon.....	Apr. 27-June 10.....	199	61	
Do.....	July 2-Oct. 14.....	132	60	
Italy:				
Turin.....	May 21-June 24.....	32	12	
Do.....	July 12-Sept. 30.....	12	3	
Jamaica:				
Kingston.....	Sept. 9-15.....	1	.....
Japan:				
Kobe.....	May 27-July 22.....	65	16	Jan.-July, 1917: Cases, 4,974; in 37 Provinces and districts.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued.

Reports Received from June 30 to Dec. 7, 1917—Continued.

SMALLPOX—Continued.

Place.	Date.	Cases.	Deaths.	Remarks.
Japan—Continued.				
Nagasaki.....	May 28-June 3.....	1		
Osaka.....	May 16-July 5.....	177	55	
Yokosichi.....	July 27-31.....	1		
Yokohama.....	May 27-July 1.....	1	1	
Java:				
East Java.....	Apr. 2-July 1.....	38	2	
Do.....	July 2-Aug. 29.....	21		
Mid-Java.....	Apr. 1-July 1.....	88	7	
Do.....	July 2-Oct. 2.....	100		
West Java.....				
Batavia.....	Apr. 13-Sept. 29.....	32	6	Apr. 13-July 5, 1917: Cases, 239; deaths, 41. July 6-Oct. 11, 1917: Cases, 275; deaths, 80.
Mexico:				
Coatepec.....	Jan. 1-June 30.....		116	
Do.....	Aug. 1-14.....		1	Jan. 1-Aug. 14, 1916: 118 deaths.
Jalapa.....	July 1-13.....		1	
Mazatlan.....	July 14-Aug. 7.....		9	
Mexico City.....	June 1-30.....	162		
Do.....	Aug. 5-Oct. 27.....	176		
Monterey.....	June 18-24.....		24	
Orizaba.....	Jan. 1-June 30.....		23	
Do.....	July 1-23.....		1	
Vera Cruz.....	July 1-Sept. 15.....	6	2	
Netherlands:				
Amsterdam.....	Aug. 13-18.....	1	1	
Philippine Islands:				
Manila.....	May 13-June 9.....	6		Variceloid.
Do.....	July 8-Oct. 20.....	8		Do.
Portugal:				
Lisbon.....	May 13-June 30.....	14		
Do.....	July 8-Oct. 13.....	9		
Portuguese East Africa:				
Lourenço Marques.....	Mar. 1-June 30.....		5	
Do.....	July 1-31.....		7	
Russia:				
Archangel.....	May 1-June 28.....	56	4	
Do.....	July 2-Aug. 28.....	6		
Moscow.....	July 2-15.....	6		
Petrograd.....	Feb. 18-June 30.....	565		
Do.....	July 2-29.....	58		
Riga.....	Mar. 11-June 2.....	7		
Vladivostok.....	Mar. 15-24.....	23	7	Jan. 1-Mar. 31, 1917: Cases, 9.
Siam:				
Bangkok.....	June 9-30.....	16		
Do.....	July 11-17.....	3	5	
Spain:				
Madrid.....	May 1-June 19.....		4	
Malaga.....	Apr. 1-June 30.....		44	
Do.....	July 1-31.....		19	
Seville.....	May 1-June 30.....		11	
Valencia.....	June 3-23.....	5		
Do.....	July 1-Sept. 15.....	13		
Straits Settlements:				
Penang.....	Mar. 18-June 23.....	6	3	
Singapore.....	June 24-30.....	1		
Do.....	Sept. 16-22.....	1		
Sweden:				
Malmö.....	Apr. 22-28.....	1		
Stockholm.....	May 29-June 23.....	2	1	
Tunisia:				
Tunis.....	June 2-8.....	2		
Turkey in Asia:				
Trebizond.....	Feb. 25-Apr. 13.....		13	
Union of South Africa:				
Jo'annesburg.....	Mar. 12-24.....	4		
Do.....	July 1-31.....	3		
Uruguay:				
Montevideo.....	May 1-31.....	2		
Venezuela:				
Maracaibo.....	June 18-July 8.....		8	
Do.....	July 9-23.....		1	
On vessels:				
S. S. Alfonso XIII.....	Nov. 1.....	1		At Habana, from ports in Spain for Mexican ports.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued.

Reports Received from June 30 to Dec. 7, 1917—Continued.

TYPHUS FEVER.

Place.	Date.	Cases.	Deaths.	Remarks.
Algeria:				
Algiers.....	June 1-30.....	6	3	
Do.....	July 1-Aug. 31.....	1	1	
Argentina:				
Buenos Aires.....	Aug. 12-18.....		1	
Austria-Hungary:				
Austria.....				Oct. 22-Dec. 17, 1916: Cases, 2,371.
Bohemia.....	Oct. 22-Dec. 17.....	634		Dec. 21, 1916-Feb. 24, 1917:
Galicia.....	do.....	809		Cases, 2,553.
Lower Austria.....	do.....	47		
Moravia.....	do.....	617		
Silesia.....	do.....	16		
Styria.....	do.....	243		
Upper Austria.....	do.....	5		
Bosnia-Herzegovina.....				Dec. 22, 1916-Feb. 24, 1917: Cases,
Hungary.....				110.
Budapest.....	Feb. 13-May 27.....	10		Feb. 19-June 17, 1917: Cases,
Eisenburg.....	Apr. 23-June 17.....	278	46	1,787.
Brazil:				
Rio de Janeiro.....	July 29-Aug. 11.....	2		
Canary Islands:				
Santa Cruz de Teneriffe.....	Sept. 23-29.....		1	
China:				
Antung.....	June 23-July 1.....	3		
Do.....	July 9-Oct. 28.....	20	1	
Hankow.....	June 9-15.....	1		
Do.....	July 8-14.....		1	
Tientsin.....	June 17-23.....	1		
Tsin-tai.....	May 30-July 7.....	4		
Do.....	Aug. 5-Sept. 29.....	2		
Egypt:				
Alexandria.....	Aug. 30-July 1.....	1,648	478	
Do.....	July 17-Oct. 14.....	447	123	
Cairo.....	Jan. 22-Apr. 8.....	188	76	
Port Said.....	Mar. 19-25.....	1		
Great Britain:				
Cork.....	June 17-23.....		1	
Glasgow.....	Sept. 30-Oct. 6.....	1		
Greece:				
Salamiki.....	May 23-June 30.....		32	
Do.....	July 1-Oct. 13.....		67	
Japan:				
Hakodate.....	July 22-28.....	1		
Nagasaki.....	June 11-24.....	4		
Do.....	July 9-Oct. 28.....	44	1	
Java:				
East Java.....				May 6-July 1, 1917: Cases, 6,
Surabaya.....	June 25-July 29.....	4		July 9-Aug. 29, 1917: Cases, 7,
Mid-Java.....				Apr. 1-June 24, 1917: Cases, 38;
Samarang.....	May 5-June 10.....	14	2	deaths, 5. July 9-Oct. 2, 1917:
Do.....	July 2-8.....	5		Cases, 16, deaths 2.
West Java.....				Apr. 13-July 5, 1917: Cases, 147;
Batavia.....	Apr. 13-July 5.....	70	6	deaths, 6. July 6-Oct. 2,
Do.....	July 6-Oct. 4.....	96	10	1917: Cases, 151; deaths, 17.
Mexico:				
Aguascalientes.....	July 10-Oct. 28.....		2	
Coatepec.....	Aug. 1-14.....		1	
Durango, State.....	Oct. 29.....			Prevalent on ranches in vicinity
Jalapa.....	Apr. 1-June 30.....		5	of El Rio.
Do.....	July 1-31.....		3	
Mexico City.....	June 3-30.....	431		
Do.....	July 8-Oct. 27.....	1,533		
Orizaba.....	Jan. 1-June 30.....		6	
Do.....	July 1-31.....		1	
Netherlands:				
Rotterdam.....	June 9-23.....	3	2	
Do.....	July 15-Sept. 1.....	11		
Norway:				
Bergen.....	July 8-28.....	7		
Portuguese East Africa:				
Loarengo Marques.....	Mar. 1-31.....	1		
Russia:				
Archangel.....	May 1-June 28.....	11	2	
Do.....	July 2-Aug. 28.....	16	5	

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued.

Reports Received from June 30 to Dec. 7, 1917—Continued.

TYPHUS FEVER—Continued.

Place.	Date.	Cases.	Deaths.	Remarks.
Russia—Continued.				
Moscow.....	July 2-15.....	10	.....
Petrograd.....	Feb. 18-June 30...	141	3	
Do.....	July 2-29.....	33	.....
Poland.....				Apr. 23-June 3, 1917: Cases, 2,814; deaths, 187. June 17-July 14, 1917: Cases, 2,328; deaths, 211.
Lodz.....	Apr. 23-June 3....	120	16	
Do.....	June 17-July 14....	108	16	
Warsaw.....	Apr. 23-June 3....	1,644	15	
Do.....	June 17-July 14....	1,455	131	
Riga.....	May 31-June 16....	8	.....	Jan. 1-31, 1917: 1 case.
Do.....	July 22-28.....	5	.....	May 1-31, 1917: Cases, 4.
Vladivostok.....	Mar. 23-May 21....	5	.....
Spain:				
Almeria.....	May 1-31.....	.....	5	
Madrid.....	do.....	.....	2	
Switzerland:				
Basel.....	June 17-23.....	1	.....
Do.....	July 8-Sept. 29....	8	1	
Zurich.....	July 26-Sept. 22....	2	.....
Trinidad.....	June 4-9.....	2	.....
Tunisia:				
Tunis.....	June 30-July 6....	.....	1	
Union of South Africa:				
Cape of Good Hope State..	.....	.....	.....	Aug. 25, 1917: Present in 16 districts.
East London.....	Sept. 10.....	.....	.....	Present.

YELLOW FEVER.

Ecuador:				
Babahoyo.....	Feb. 1-28.....	1	1	
Do.....	Mar. 1-31.....	2	1	
Chobo.....	do.....	1	1	
Guayaquil.....	Feb. 1-28.....	18	7	
Do.....	Mar. 1-Apr. 30....	34	18	
Do.....	July 1-Aug. 31....	24	10	
Milagro.....	Feb. 1-28.....	1	.....
Do.....	Mar. 1-Apr. 30....	2	1	
Naranjito.....	July 1-Aug. 31....	2	2	
Mexico:				
Campeche, State—				
Campeche.....	Sept. 25.....	2	.....
Yucatan, State—				
Merida.....	Sept. 1-Oct. 28....	3	2	
Peto.....	June 23.....	1	1	In person recently arrived from Mexico City.
Do.....	July 29-Aug. 11....	6	2	
Venezuela:				
Caro.....	.....	.....	.....	Present Sept. 5.

X